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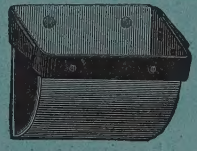

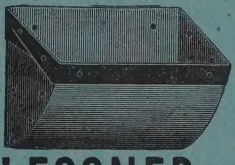

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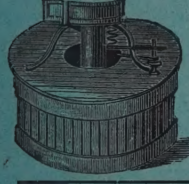

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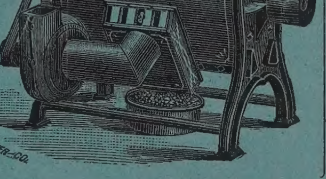

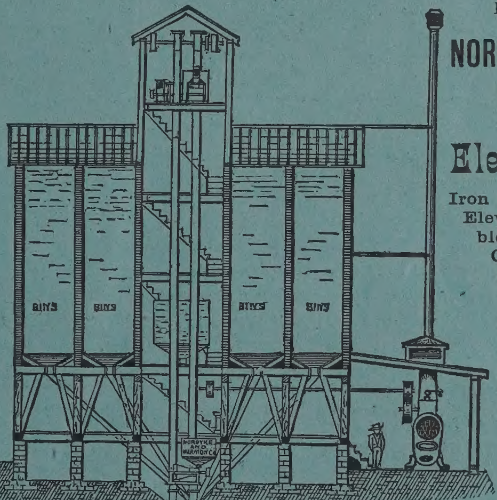

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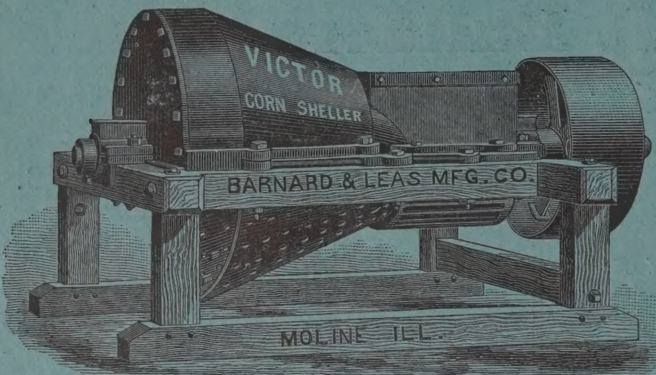
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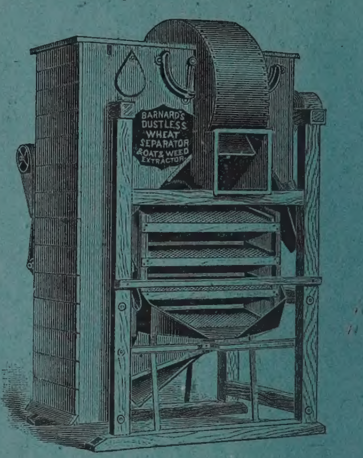

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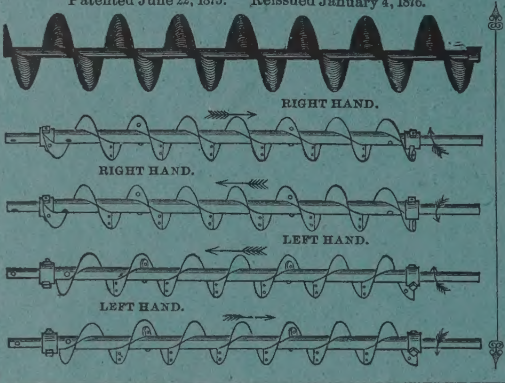
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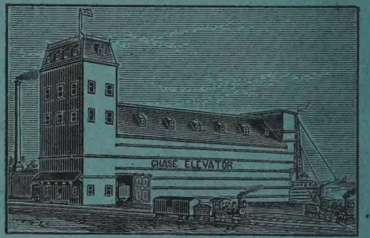

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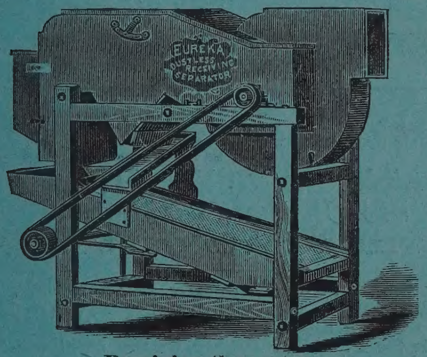

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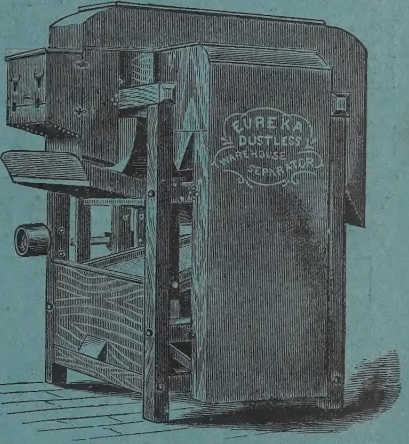

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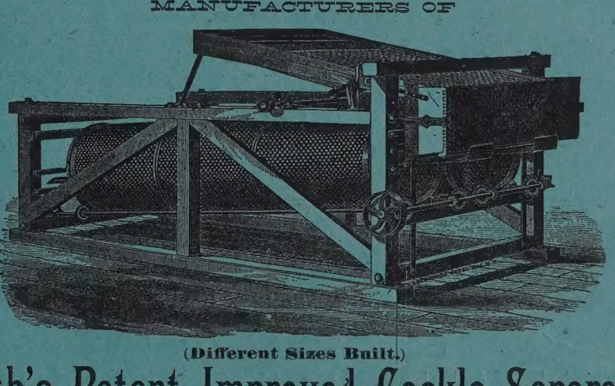

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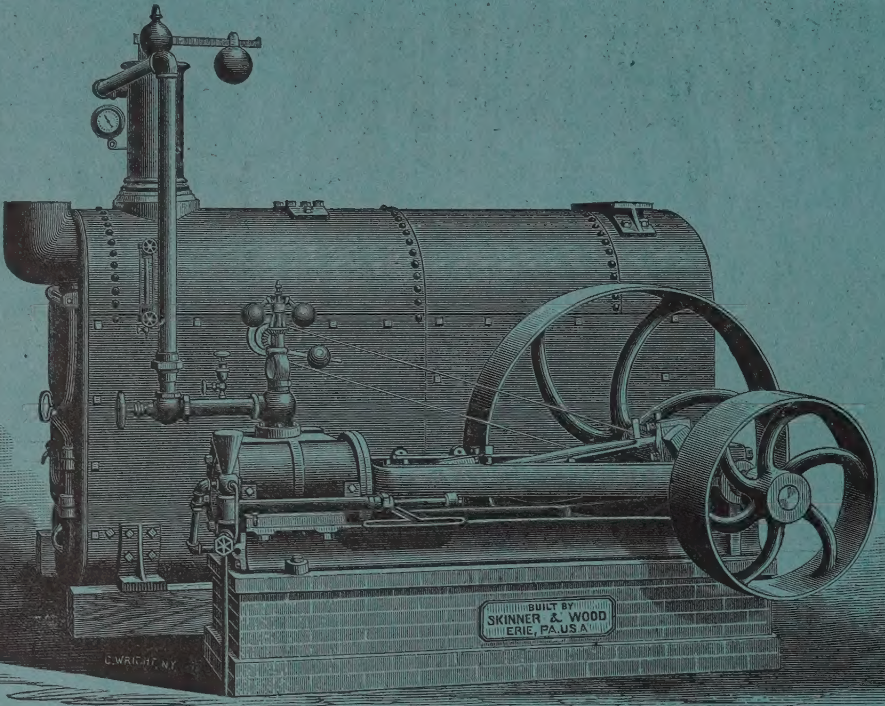
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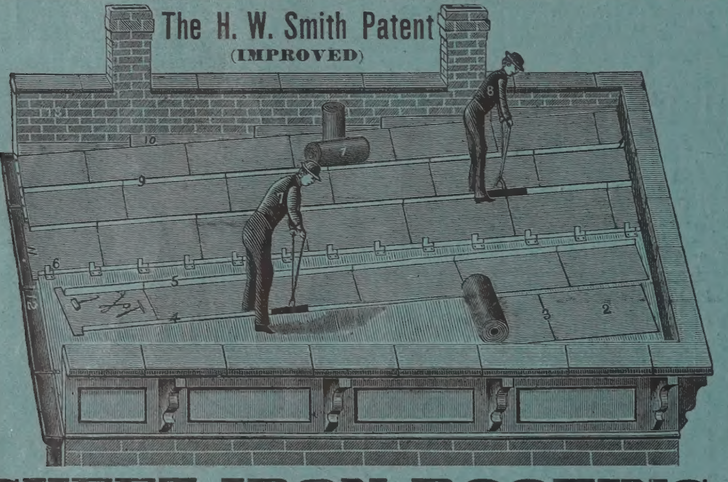

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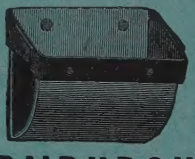

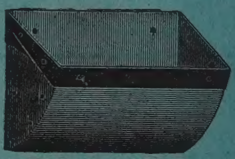

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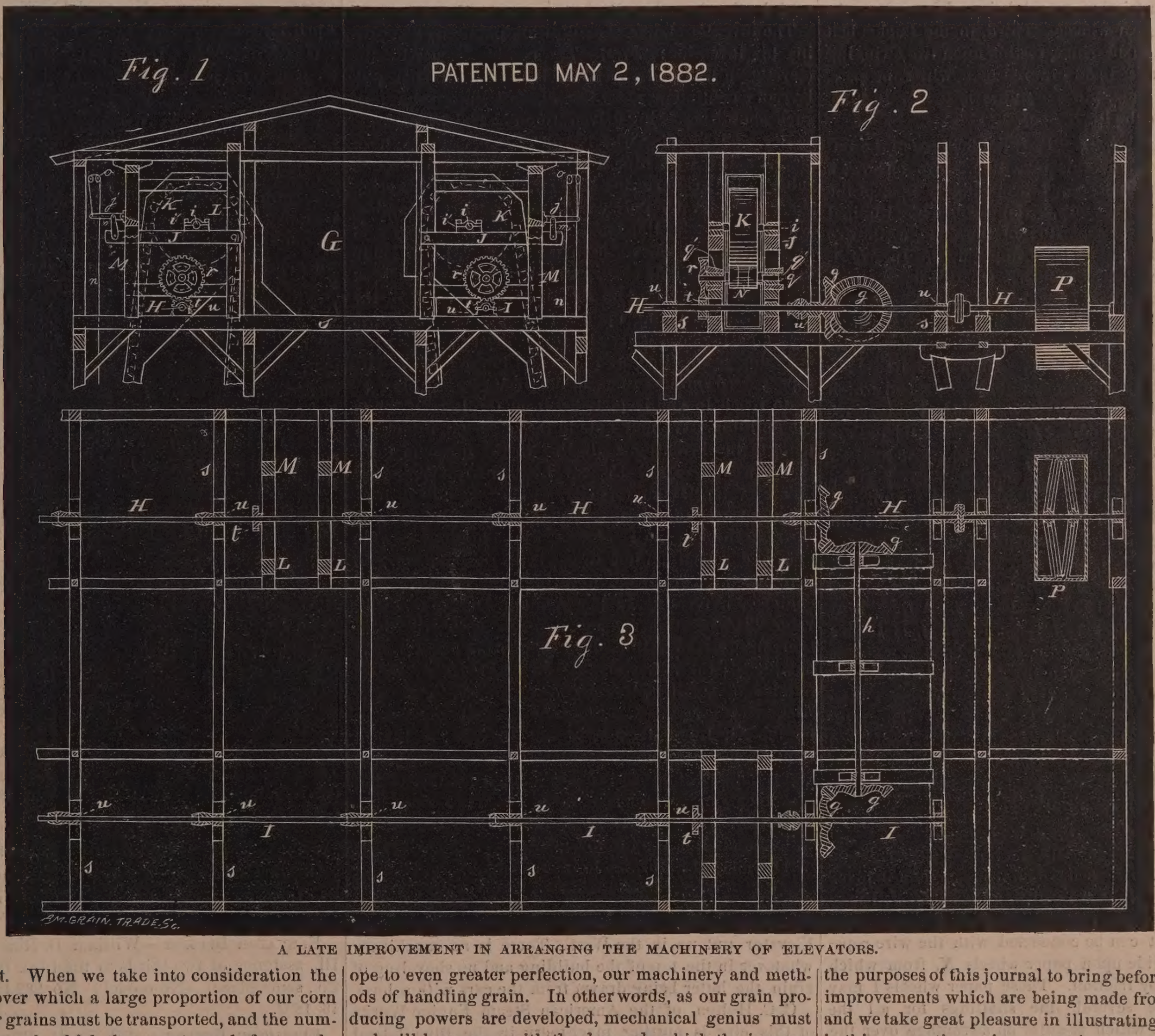
PUBLISHED BY Mitchell Bros. Company, (INCORPORATED.) | VOL. I. | CHICAGO, ILLINOIS, AUGUST 15, 1882. | No. 2. | SUBSCRIPTION PRICE, ONE DOLLAR PER ANNUM.

AN IMPROVEMENT IN ELEVATORS.

The growth of our country, phenomenal in every respect, has been especially so in the vastly increased amount of cereal produce which seems to bless each succeeding harvest. When we take into consideration the vast distances over which a large proportion of our corn wheat and other grains must be transported, and the number of hands through which they must pass before reaching the consuming markets, we can hardly fail to be impressed with the magnitude of our grain trade. Nor can we help perceiving another thing, which is, that the demands made upon our elevators in handling the vast amounts of grain which are yearly moved from the producing to the consuming centers, must necessarily develope to even greater perfection, our machinery and methods of handling grain. In other words, as our grain producing powers are developed, mechanical genius must and will keep pace with the demands which the increased products of our fields make upon the grain handling interests. This we find to be the case more and more each day. Although our elevators have been the admiration of all foreign nations, our inventors are constantly finding methods of improving upon the arrangement and management of elevator machinery itself. It is one of the purposes of this journal to bring before its readers the improvements which are being made from time to time, and we take great pleasure in illustrating aud describing in this connection as important improvement in elevators patented on May 2d of the present year by WM. H. LOTZ,



A LATE IMPROVEMENT IN ARRANGING THE MACHINERY OF ELEVATORS.

of this city, a gentleman well known to the trade as the inventor of many valuable improvements in grain handling machinery, and in connection with the building of some of the largest elevators in the country.

The invention in question has for its object the arrangement of the machinery for elevating grain in such a manner as to occupy and obstruct less room and also so that each elevator can be thrown out of gear from the lower story of the building. We hardly need inform the reader that in large houses there are two or more lines of elevators, known according to the purpose they fulfill as "receiving" and "shipping" elevators. Heretofore the receiving elevators only were driven directly from the line shaft and the shipping elevators were each driven from a pulley upon the line shaft through the agency of a belt, provided with a tightening pulley to prevent slipping because the belt could not be of sufficient length for the stress necessarily laid upon them. We hardly need say that these cross belts require constant attention and cause frequent trouble and annoyance, as well as obstructing the upper or machinery floor of the cupola of the building in such a manner as to make it difficult and dangerous for the attendant to move about for the necessary watching and lubricating of the working parts. Another difficuly is that an elevator whether choked so that the bucket belt slips or obstructed by a piece of wood or other material finding its way into the boot and tearing off the buckets, cannot be thrown out of gear from the lower floor where the accident would naturally be first observed but only by some one from the upper floors, unless the whole machinery is stopped which last is generally the quicker plan of the two.

Mr. Lotz's invention which is designed to overcome these disadvantages consists first, in using a continuous line shafting for each line of elevators, the several lines of shafting being driven from a main pulley and by gear wheels at one end of the building. Second, in a bucket-belt pulley for each elevator, riding upon a paper friction wheel, each friction wheel being driven from the line shafting by gear wheels. Third, in the bucket-belt pulley journaled in bearings, resting upon two swinging beams that are raised and lowered by a wire rope passing vertically through pipes or tubes in the grain bins, so as to extend to the lower floor.

Our engraving shows the essential features of the improvement covered by this invention. *Fig* 1 shows a transverse section of the upper or machinery floor of the cupola of the elevator. *Fig.* 2 represents a longitudinal sectional elevation of a portion of the same, while *Fig* 3 shows a sectional plan of the upper floor. In *Fig.* 1, *G* is the upper or machinery floor. On this floor, at one end is the main pulley *P*, which is driven by a belt from the bard-wheel of the engine and the shaft of which is coupled with the line-shaft, *H*, that drives the receiving elevator pulleys. The letter *I* shows the line-shafting that drives the shipping-elevator pulleys, and which is driven by miter gear-weeels *g* and by a transverse shaft, *h*, from the line-shafting *H*. *K K* are the pulleys over which the bucket-belts are stretched. The shafts *i* of these pulleys are journaled in boxes that are secured upon beams *J*. These beams *J*, at one end, are pivoted to posts *L*, and at their site ends they are thinned out and passed through slots in posts *M*, so as to be guided and to move vertically therein. Levers *j* are pivoted against the posts *M*, and by links *m* the ends of the beams *J* are suspended to these levers *j*. A rope, *n*, is connected with the ends of these levers *j*, is thence passed upward over sheaves *o*, and thence it extends vertically downward through the several stories of the cupola of the elevator, and is passed through gas-pipes *p*, that are placed for that purpose into the grain-storage bins, and at the lower floor this rope is connected either to a tackle, to a lever, or to a windlass, by which it is pulled by the operators whenever it becomes necessary to throw the elevator out of gear.

In the specifications of his patent the inventor says: "In place of a rope, I may use a chain or either a rope or chain coupled to the ends of an iron rod, and in place of the levers *j* and links *m* for lifting the beams *J*, I may use any other device that will furnish the necessary leverage and that can be connected with the wire rope. The pulleys *K* ride upon paper wheels *N*, from which they are driven by friction. These paper wheels I may mount upon the several line shaftings for all the several elevators, which is quite an advantage over the former arrangements, in which a portion of the elevators were driven by belts from a single line of shafting. To this new arrangement, of which, to my best knowledge and belief, I am the originator, there is one objection, and that is that the line-shaftings reach from about two and a half to three feet above the floor, and are an obstruction to the attendant to move about. Besides that, the shaftings has to be supported upon special timber framing.

"My latest improvement consists in mounting each paper wheel *N* upon an independent shaft, *q*, having vertically adjustable journal-boxes *q'*, and carrying upon one end a spur-wheel, *r*: in placing the line-shafting *H* and *I* in bearings *u*, secured upon the floor-beams *s*, which shafting is driven at a high speed; and in mounting pinions *t* upon said shafts that engage with the wheels *r* and drive the paper wheels *N*."

The advantages which the inventor obtains by this arrangement of placing the lines of shafting close to or upon the floor beams are that they are entirely out of the way, so as not to obstruct the floor, that they can be easily covered and protected against the dust, that no special frame-work is required for supporting the journal-boxes, that lighter shafting can be used on account of the increased leverage and speed, and that a fast-running engine can be used as the driving-power. A still further advantage derived by mounting the paper wheels upon independent short shafts and by driving them with gearing from the line shafting below, is that such shafts can be more readily adjusted to be parallel with the bucket-belt pulleys, and without having to adjust the entire length of a line shafting, since it makes no difference with this arrangement whether such line shafting is on a true level or not as long as the gear wheels that drive the paper wheels mesh each other. The difficulties heretofore experienced in keeping adjusted a long line of shafting in a building of the nature of a grain elevator, in which by irregular shrinkage and settling, and by unequal distribution of the grain loaded therein, constant changes take place, are well-known facts to every millwright, all of which is done away with by the above described arrangement.

The inventor claims the following points as comprising his invention: *First.*—The combination, with the elevator-pulleys and paper wheels for driving such pulleys, of a continuous shaft-line for each line of elevators, such shaft-lines being driven from one end by a single pulley and by gear-wheels and a transverse shaft or shafts, and a wire rope, chain, or rod passed through tubes in the grain storing bins for raising and lowering the upper elevator pulley. *Second.*—The combination, with a continuous line-shafting carrying gear-wheels, of an independent shaft for each paper wheel, journaled in vertically-adjustable boxes and having a gear-wheel that meshes the gear-wheel on the line-shafting, and of the elevator-pulley riding upon such paper wheel. *Third.*—In a grain elevator, the elevator-pulley supported upon swinging beams that are raised and lowered by a wire rope passed through tubes in the grain-storing bins, so as to reach to and be operated from the lower floor of the building. We may note in this connection that the parts of the invention embodied in the first and third claims was first applied by Mr. Lotz, in Armour, Dole & Co's Elevator "D" in this city, which was built in 1879.

The owners of this patent are Messrs. Baumann & Lotz, Architects and Engineers, whose headquarters are at 57 and 59 Metropolitan Block, Chicago. We may add here that these gentlemen have been the architects and engineers in erecting, besides Armour, Dole & Co's Elevator "D," mentioned above, the new corn crib of the same firm, with a million bushels capacity, now nearly completed; the new Rock Island Elevator "A," and a number of smaller elevators at Akron, Ohio, Mobile, Ala., and other places. Mr. Lotz designed the machinery for the Air Line Elevator, for the Iowa house, the St. Paul Elevator, Armour, Dole & Co's Elevator C, and others, and, as stated before, has made a number of improvements in elevator machinery which are controlled by Messrs. Baumann & Lotz, information concerning which, including the improvement described above, they will be pleased to furnish to interested parties.

In Kansas City, Mo., they have the first Pneumatic Elevator put up in the West. There is no machinery whatever in the top of the building and no shoveling of grain, the latter being drawn from the cars with a hose.

C. C. Holton, of the American Steam Engine Works of this city is putting machinery in the Blue Island Elevator owned by Chas. Briggs & Goodspeed, of Joliet, Ill., situated at the junction of the Rock Island and Grand Trunk roads.

Late Patents.

Issued on July 4, 1882.

Apparatus for Drying Grain.—Nels W. Hawkenson, Litchfield, Minn. (No model.) No. 260,567. Filed May 15, 1882.

Shaft Coupling.—Luther R. Faught, Philladelphia, Pa. (No model,) No. 260,467. Filed March 31, 1882.

Shaft Coupling—Luther R. Faught, Philadelphia, Pa. (No model.) No. 260,468. Filed May 11, 1882.

Issued on July 11, 1882.

Drier and Cooler.—Frederick H. C. Mey, Buffalo, N. Y. (No model.) No. 261,018. Filed April 11, 1882.

Grain Cleaning and Assorting Machine—Wilhelm Kruger, Kalk, near Cologne, Germany. (No model.) No. 260,996. Filed March 5, 1882. Patented in Germany, December 29, 1878. No. 6,609, and June 12, 1879, No. 8,955; and in Austria, Hungary, July 10, 1879, No. 3,093, and February 28, 1880, No. 411.

Issued on July 18, 1882.

Car Starter—Warren S. Dwiniel, Providence, R. I. (No model.) No. 261,209. Filed May 22, 1882.

Car Starter—George A. Evans, Kingsley, and Henry T. Evans, Parish of Notre Dame de Toute Grace, Quebec, Canada. (No model.) No. 261,324. Filed May 9, 1882.

Car Starter.—Hans C. E. Stilhoff, Copenhagen, Denmark, assignor of one-half to Christian Sorensen, same place. (No model.) No. 261,492. Filed June 5, 1882, Patented in Denmark, January 24, 1882.

Apparatus for Separating Cockle and Seeds from Waeat or Other Grains.—Ebenezer Winchester, Rochester, Minn., assignor of one-half to Stewart B. Clark, same place. (No model.) No. 261,193. Filed April 11, 1882.

Grain Meter.—Robert H. Edmiston, Americus, Kansas. (No model.) No. 261,516. Filed November 22, 1882.

Grain Meter.—Carl Renther, Hennef, Prussia Germany. (No model.) No. 261,257. Filed September 27, 1881.

Machine for Measuring Grain.—Warren R. Edgington, Waterloo, Iowa. (No model.) No, 261,210. Filed March 15, 1882.

Refrigerating and Drying Grain, etc.—Henry C. Johnson and Francis M. McMillan, Washington, D. C. (No model.) No. 261,460. Filed April 22, 1882.

Issued on July 25, 1882.

Elevators.—John V. Hope, Wednesbury, County of Stafford, England. (No model.) No. 261,714. Filed June 29, 1882.

Grain Cleaning Apparatus.—Thomas S. Bayley, Chico, Cal. (No model) No. 261,653. Filed April 18, 1882.

Grain Elevator.—Elias Roberts, and William H. Lotz, Chicago. Ill. (No model.) No. 261,630. Filed January 3, 1881.

Grain Elevator and Hoisting Apparatus.—John E. Walsh, New York, N. Y. (No model.) No. 261,792. Filed June 3, 1882.

Scoop.—William P. T. Jope, Pittsburg, Pa. (No model.) No. 261,614. Filed June 23, 1882.

Scoop.—William P. T. Jope, Pittsburg, Pa. (No model.) No. 261,615. Filed June 23, 1882.

Grain Trimmer.—William S. Brice and William P. Thompson, Liverpool, County of Lancaster, England. (No model.) No. 261,660. Filed April 28, 1882. Patented in England, July 2, 1880. No. 2,704.

Issued on August 1, 1882.

Grain Car Door.—George G. Tanner, Indianapolis, Ind. (No model.) No. 261,883. Filed August 9, 1882.

Elevator Bucket.—William D. Rinchart, Chicago, Ill., assignor of two-thirds to the Link Belt Machinery Co., same place. (No model.) No. 262,122. Filed June 16, 1882.

Elevator Bucket.—William D. Rinehart, Chicago, Ill., asssignor to the Link Belt Machinery Co., same place, (No model.) No. 262,123. Filed June 16, 1882.

AN IMPROVED PLAN OF BUILDING ELEVATORS.

The elevator is a distinctively American idea. Grain warehouses have had an existence for centuries; and we read of their being used by Joseph to store Pharoah's corn. But the elevator with its conveniences for handling as well as storing grain, originated in the United States, and even now its importance is just beginning to be appreciated in other countries. But, convenient as our elevators are, improvements are constantly being made in them. We present on this page a cut showing a design very popular among grain men, and one which is being rapidly adopted on account of its cheapness and convenience. The upper part is calculated to hold five car loads of grain, so that when there are only five cars, or less, to be shipped, there is no need of getting up steam. The advantage of this arrangement to small elevators will be at once perceived.

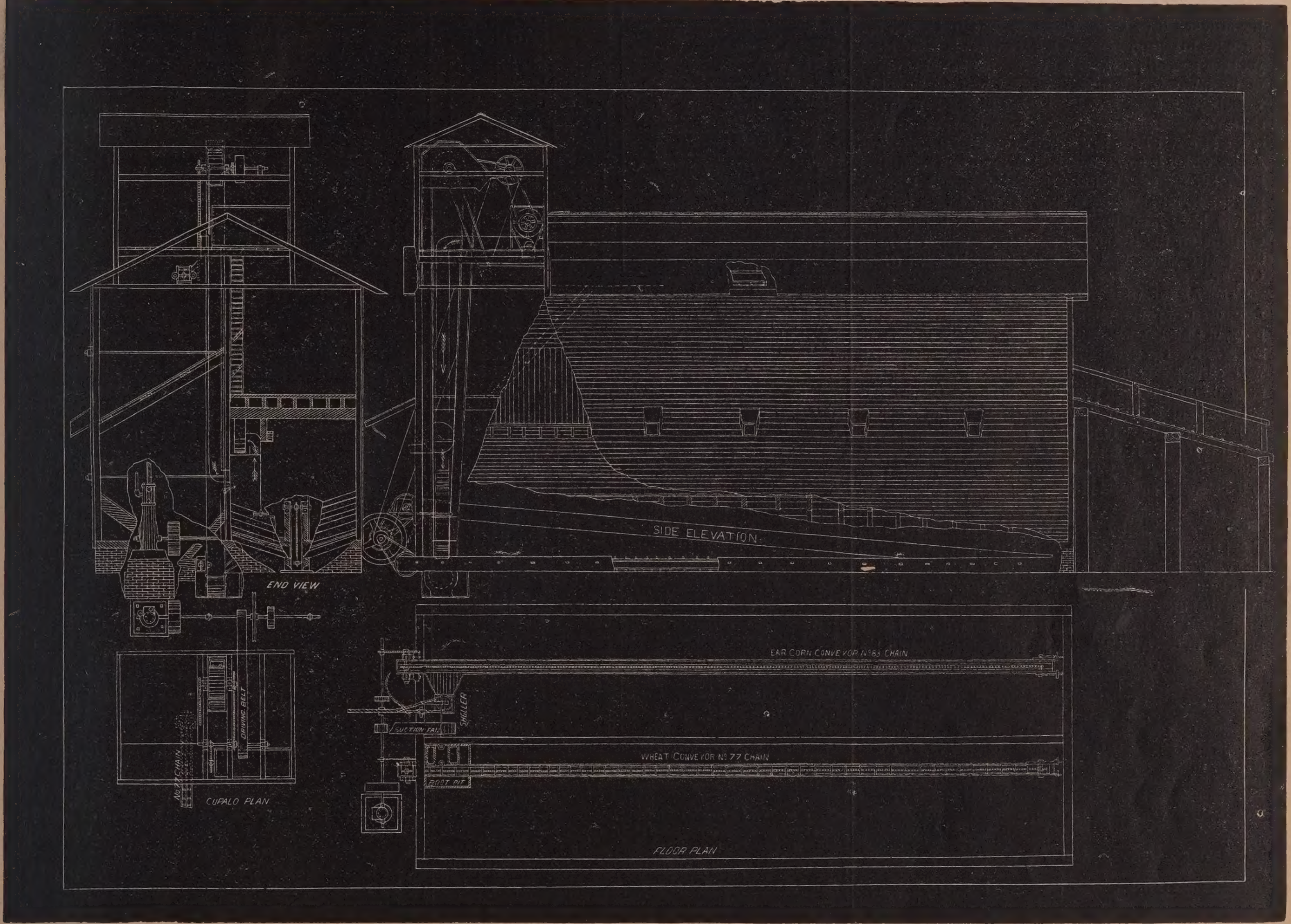
Our engraving shows the floor plan, side and end elevators, together with the plan of the cupola. The plan needs little explanation, as its characteristics will be at once seen by the practical man. The upper corners of the lower bins are supplied with slides, so that grain can be drawn from the upper bins to fill them, and the slides then closed and the upper bins filled. If a weigh hopper is needed, the cupola can be built a little higher and larger and the grain can be drawn into the conveyor and each bin filled with a car load. It will be seen that this arrangement provides for placing the suction fan below. Some object to this plan preferring the old one of carrying all the dirt to the top of the building and then using a blast fan to blow it everywhere in general and no where in particular; but this old way of arranging things is daily finding fewer advocates, as the advantage of the other more rational method becomes apparent. So too the designer of the plan under consideration believes it useless to endeavor to couple a rolling screen and suction fan, as one runs slow and the other so fast that to couple them seems like yoking an ox and a blooded horse together. To accomplish the same end he runs a pipe to the discharge of screen and another to the sheller discharge, when much of the shucks, silks and dust is taken direct to the fan and thrown in the dust room or out of doors. In this way the fan spouts can be arranged to clean any grain from the dust and light material that always comes from the farm. Another advantage of this plan is that all the machinery having high speeds is located near the engineer, so that in case of fire the flames can readily be discovered and be accessible as well, which is hardly the case when the high speeded machinery is in the top of the building. This makes quite an item in the matter of insurance.

When a wheat cleaner is wanted in this plan, it is set on the ground floor next the engine room and if necessary to run when the large elevator is in use, a small additional elevator is built to accommodate the same.

The conveyors in this elevators are such as clean all out, so that one kind of grain can be run after another. The elevator can be run to spout direct to the car, and with the new flexible spout made by this firm, one man can put two thousand bushels of grain into cars every hour. In this respect the plan meets with the hearty indorsement of grain men everywhere.

The Automatic Sheller for the corn is claimed to be the first power sheller that adjusts itself to different sized cobs, consequently there is no splitting and breaking of them, as with the rigged sheller, and there are also less cut kernels to be blown out with the dust. As the dust and rubbish of the corn is largely taken out as soon as made it does not reach the upper part of the building, thus avoiding it being spread over the bins, and coming down at last to cover the last grain as it is deposited in the car from the bin. There are a number of grain houses in Illinois, that are using this style of cleaning, and they indorse it heartily.

The plan described above originated with Mr. H. A. Hawkins, a well-known grain man, formerly of Central Illinois, but now with the Columbian Iron Works of this city. The equipment of an elevator on this plan only needs an engine of from sixteen to twenty horse-power at the most to shell from 4000 to 5000 bushels of corn per day, besides handling wheat and oats. The plans and machinery for elevators of this kind are furnished by **Mr. Chas. W. Parker**, proprietor of the Columbian Iron Works, 325–331 Desplaines St., Chicago. Mr. Parker has some cheap and durable crane and bin-bottom spouts and a nice Iron Boot pattern which he supplies to elevators. Parties who contemplate the erection of grain houses of any description can obtain any desired information respecting the plan and equipment just described, by addressing Mr. Parker as above.



AN IMPROVED PLAN OF BUILDING ELEVATORS.

GRAIN STORAGE IN NEW YORK.

At a meeting of the New York and Produce Exchange on August 3, it was decided not to alter the rule changing No. 2 corn, as applied to the grades of new No. 2 and old No. 2. The crop will be rated as heretofore, new No. 2, if not dry enough, to rate as No. 2. The Grain Committee reported that the railroads had been before them on the question of overflow of railroad elevators, and submitted a proposition that all the grain, elevators could not hold, should be delivered at Brooklyn warehouses. This proposition the committee did not care about taking the responsibility of accepting without the sense of the Board of Trade, as it would cost the merchants from one-eighth to one-quarter more per bushel, and they would also lose ten days' storage and free lighterage. It was finally decided to appoint a committee to confer with the Grain Committee, and endeavor to procure an amicable settlement with the railroads.

Wm. E. George is building a 25,000-bushel elevator at Gettysburg, Ohio. The Chase Elevator Co., of Chicago, Ill., supplied the plan and specifications for the building.

SEVERAL OPINIONS.

We are naturally modest but we cannot forbear publishing the following kindly notices: "The first number of the American Elevator and Grain Trade a monthly journal, has appeared, and, judged by the standard of merit, it deserves success. There is an ever-widening field in this country for a paper that will adequately represent the enormous grain interests of the United States, and fully grasp the questions, statistical and otherwise, relating thereto. Such a paper as this we hope to find in the Elevator and Grain Trade, published by Mitchell Bros. Co., of Chicago, and edited by Mr. Harley B. Mitchell, the able editor of the *American Miller.*—*Baltimore Journal of Commerce.*

"The American Elevator and Grain Trade is the name selected for a new journal which is soon to be issued the Mitchell Bros. Co., of Chicago. The field which it is intended to occupy is a very broad one, and having never yet been properly represented by any published advocate of its interests, the new enterprise will no doubt be warmly welcomed and liberally supported from the start. The grand success which has attended the efforts of the Mitchell Bros. in the development of the *American Miller*, which is now recognized as the foremost milling journal of the age, is the strongest assurance that the new paper, representing an interest with which its publishers have been brought into close relations, will combine all the features of excellence which have in the past characterized the older Journal."—*The Grain Cleaner.*

"The American Elevator and Grain Trade is the name of a new paper published by Mitchell Brothers Company, of Chicago, who are also publishers of the *American Miller.* The new journal is handsomely printed, is well edited, and is replete with the information calculated to interest and benefit its readers. One issue is not sufficient to fully develop the designs of the publishers, but we have thoroughly examined the first issue, and if that issue is an index of what may be expected in succeeding ones, the journal will be found of vast interest to the elevator and grain trades."—*New York Produce Exchange Bulletin.*

"Messrs Mitchell Bros. & Co., it is announced, will, about July 15, begin the publication of the American Elevator and Grain Trade. The gentlemen named have made a success of the *American Miller*, and it is easy guess that the new venture will soon take its place in the front rank of technical journalism. We shall take pleasure in receiving the new journal, when it debuts."—*St. Louis Miller.*

THE PRINCIPAL GRAIN STATES.

The following comparisons are made from the official reports of 1880 and are based on the crop of 1879: These are the only complete figures that will be available for ten years to come—until the census for 1890; and they will serve for general reference.—We first give the totals for all the States and Territories, and the average per acre in bushels—carrying the figures out to two decimals:

Total Acreage and Yield in Bushels.

Total in U. S.	Bushels.	Acres.	Average Per Acre.
Corn	1,754,861,535	62,368,869	27.01
Wheat	459,479,505	35.430,052	12.97
Oats	407,858,999	16,144,593	25.26
Barley	44,113,495	1,997,717	22.08
Rye	19,831,595	1,842,303	17.76
Buckwheat	11,817,327	848,389	13.09
Total	2,697,962,456	118,631,923	22.75

Leading Wheat States.—The following 14 States were credited with over 10,000,000 bushels each, and with an aggregate of 398,144,457 bushels, this being 86½ per cent., or nearly seven-eighths of the wheat crop of the entire country. The first six States had 245,698,002 bushels, or over half (53½ per cent.) of the total crop, or about 32,000,000 bushels more than all the other 41 States and Territories. The great differences in the yield per acre in the different States is noteworthy—from 9¼ in some States to 19½ bushels in Michigan!

Wheat States.	Bushels.	Acres.	Average Per Acre.
1—Illinois	51,110,502	3,218,542	15.89
2—Indiana	47,284,853	2,619,695	18.05
3—Ohio	46,014,869	2,556,134	18.00
4—Michigan	35,532,543	1,822,749	19.60
5—Minnesota	34,601,030	3,044,670	11.36
6—Iowa	31,154,205	3,049,288	10.22
7—California	29,017,707	1,832,429	15.84
8—Missouri	24,966,627	2,074,394	12.04
9—Wisconsin	24,884,689	2,298,513	10.83
10—Pennsylvania	19,462,405	1,445,384	13 60
11—Kansas	17,324,141	1,861,402	9.31
12—Nebraska	13,847,007	1,469,865	9.42
13—New York	11.587,766	736,611	15 61
14—Kentucky	11,356,113	1,160,108	9.79

Leading Indian Corn States.—The three States of Illinois, Indiana and Missouri, are credited with 803,302,451 bushels, or nearly half (45.8 per cent.) of the crop of the entire country, and the first named 10 States produced nearly four-fifths (78.8 per cent.) of the whole. A remarkable range is the product per acre—from 8.81 in Florida, and 9 in South Carolina, up to 41½ in Iowa. Massachusetts and Connecticut are alike in yield per acre, and Vermont and New Hampshire are nearly so.

Indian Corn States.	Bushels.	Acres.	Average Per Acre.
1—Illinois	325,792,481	9,019.381	36.13
2—Iowa	275,024,247	6,616,144	41.57
3—Missouri	202,485,723	5,588,265	36.23
4—Indiana	115,482,300	3,678,420	31.39
5—Ohio	111,877,124	3,281,923	34.08
6—Kansas	105,729,325	3,417,817	30.93
7—Kentucky	72,852,263	3,021,176	24.11
8—Nebraska	65,450,135	1,630,660	40.14
9—Tennessee	62,764,429	2,904,873	21.61
10—Pennsylvania	45,821,531	1,373,270	33.37
11—Wisconsin	33,230,579	1,015,293	33.71
12—Michigan	32.461,452	919,792	35.29
13—Virginia	29,106,661	1,767,567	16.46
14—Texas	29,065,172	2,468,587	11.77
15—North Carolina	28,019,839	2,305,419	12.15
16—New York	25,875,480	779,272	33.20
17—Alabama	25,451,278	2,055,929	12.38
18—Arkansas	24,156,417	1,298,310	18.61
19—Georgia	23,202,018	2,538,733	9.14
20—Mississippi	21,340,800	1,570,550	13.59
21—Maryland	15,968,533	664,928	24.01
22—Minnesota	14,831,741	438,737	31.81
23—West Virginia	14,090,609	565,785	24.90
24—South Carolina	11,767,099	1,303,404	9.03
25—New Jersey	11,150,707	344,555	32.07
26—Louisiana	9,906,189	742,728	13.34
27—Delaware	3,894,264	202,120	19.27
28—Florida	3,174,234	360,294	8.81
29—Vermont	2,014,271	55,249	36.46
30—Dakota	2,000,864	90,852	22.02
31—California	1,993,325	71,781	27.77
32—Connecticut	1,880,421	55,796	33.70
33—Massachusetts	1,797,593	53,344	33.70
34—New Hampshire	1,350,248	36,612	36.88

Leading Oats Growing States.—The revised official figures very slightly change our summary given in May. Illinois leads here again. The following 22 States yield over 3,000,000 bushels each. The first *five* yield 28,000,000 more than all the other 42 States and Territories; and the first ten about four-fifths of the entire crop. The average yield per acre varies from less than ten bushels to over 37 in Vermont, Minnesota coming next.

Oats States.	Bushels.	Acres.	Average Per Acre.
1—Illinois	63,289,200	1,959,889	32.29
2—Iowa	50,610,591	1,507,577	33.57
3—New York	37,575,506	1,261,171	29.80
4—Pennsylvania	33,841,439	1,237,593	27.36
5—Wisconsin	32,905,320	955,597	34.43
6—Ohio	28,664,505	910,388	31.48
7—Minnesota	23,382,158	617,469	37.86
8—Missouri	20,670,958	968,473	21.34
9—Michigan	18,190,793	536,187	33.93
10—Indiana	15,599,518	623,531	25.02
11—Kansas	8,180,385	435,859	18.77
12—Nebraska	6,555,875	250,457	26.18
13—Georgia	5,548,743	612,778	9.06
14—Virginia	5,333,181	563,443	9.47
15—Texas	4,893,359	238,010	20.56
16—Tennessee	4,722,190	468,566	10.08
17—Kentucky	4,580,738	403,416	11.35
18—Oregon	4,385,650	151,624	28.92
19—North Carolina	3,838,068	500,415	76.69
20—Vermont	3,742,282	99,548	37.51
21—New Jersey	3,710,573	137,422	27.00
22—Alabama	3,039,639	324,628	9.36

Leading Rye Growing States.—Only one bushel of rye is grown for 23 bushels of wheat; the total census crop of rye was under 20,000,000 bushels. We would expect this to be a prominent crop in the New England States, where "rye and Indian bread" is popularly supposed to be a leading food; but the six New England States produced only 730,255 bushels, or less than one-fifth of the crop of Pennsylvania, Connecticut yielding over half of this (370,733). Only eight States raised 500,000 bushels each, and Nebraska nearly that. The first three States give nearly half the entire crop, and the eight nearly four-fifths of all (78 per cent). The yield per acre varies from eight bushels in New Jersey and Kentucky, to 16¼ in Illinois.

Rye States.	Bushels.	Acres.	Average Per Acre.
1—Pennsylvania	3,683,621	348,465	10.57
2—Illinois	3,121,785	192,138	16.25
3—New York	2,634,690	244,923	10.76
4—Wisconsin	2,298,513	169,692	13.56
5—Iowa	1,518,605	102,607	14.80
6—New Jersey	949,064	106,025	8.00
7—Kentucky	668,050	84,417	7.92
8—Missouri	535,426	46,484	11.52

Leading Barley States.—California leads far ahead. The first four States raised two-thirds of all the barley grown in the country. The yield per acre varies all the way from 15 to 31 bushels.

Barley States.	Bushels.	Acres.	Average Per Acre.
1—California	12,579,561	586,340	21.45
2—New York	7,792,062	356.629	21.85
3—Wisconsin	5,043,118	204,335	24.68
4—Iowa	4,022,588	198,861	20.23
5—Minnesota	2,992,965	116,020	25.88
6—Nebraska	1,744,686	115,201	15.15
7—Ohio	1,707,129	57,482	29.72
8—Illinois	1,229,523	55,267	22.25
9—Michigan	1,204,316	54,506	22.10
10—Oregon	920,977	29,311	31.42

Leading Buckwheat States.—New York with 4,461,200 bushels, and Pennsylvania with 3,593,326 bushels, produce about 70 per cent. of all this crop that is grown. New Jersey, with 466,414 bushels, and Michigan, with 416,662 bushels, yield the largest in other States. New York averages over 15 bushels per acre, and Pennsylvania over 19.

THE ERIE ELEVATOR.

The Erie elevator, belonging to the New York, Lake Erie, & Western Railway Company, is one of the largest and best equipped for the rapid handling of grain of the elevators of the country. It was built in 1879 under the direction of Stephen R. Kirby, chief engineer, at Jersey City, near the landing of the Chamber street ferry. The building is 360 x 90 feet, rising from a foundation of 1,000 piles to the height of 156 feet from the surface of the water. It has a capacity of about one and a half millions bushels. It has twenty scales, furnished by Richel Brothers, of Philadelphia, with hoppers each of a size to hold a car load. The bins number 510, built of heavy plank in the most substantial manner. Cars are unloaded with great rapidity, being spouted directly into the elevator from the railway where the grain is handled by steam shovels, an invention patented by Mr. Kirby the year of the erection. They are similar to those used for sand. By means of an endless chain revolving vertically around a sprocket wheel and grooved pulley, each shoveler, attached to a shoe by a rope which is clutched by the revolving chain, is carried up a vertical slide in the same casing and discharged at the top into the sink. The shoe is then released and drops to the bottom. When the hauling rope is slacked the shoveler is guided by hand back to the bottom, when it is plunged into the grain to receive its load. A car containing 600 bushels can be unloaded by these means in eight minutes, at a cost of about twenty cents. Barges and vessels are unloaded with equal promptitude. Two 500-horse power beam engines, built by Christy & DeGraff, of Detroit, occupy an adjoining building, and drive the machinery of the elevator; one is held in reserve. The belts are of heavy rubber, the driving belt six-ply, forty inches wide: the elevator belts are twenty-two inches wide with twenty-inch buckets. In order to meet the dangers from fire there runs through the whole building a four-inch copper pipe with branches at suitable intervals through which water is constantly being forced, and by means of hose can be carried to any required distance. The elevator is operated by Hazeltine & Annan; Mr. Hopkins is the general manager.

THE CANADIAN CANALS.

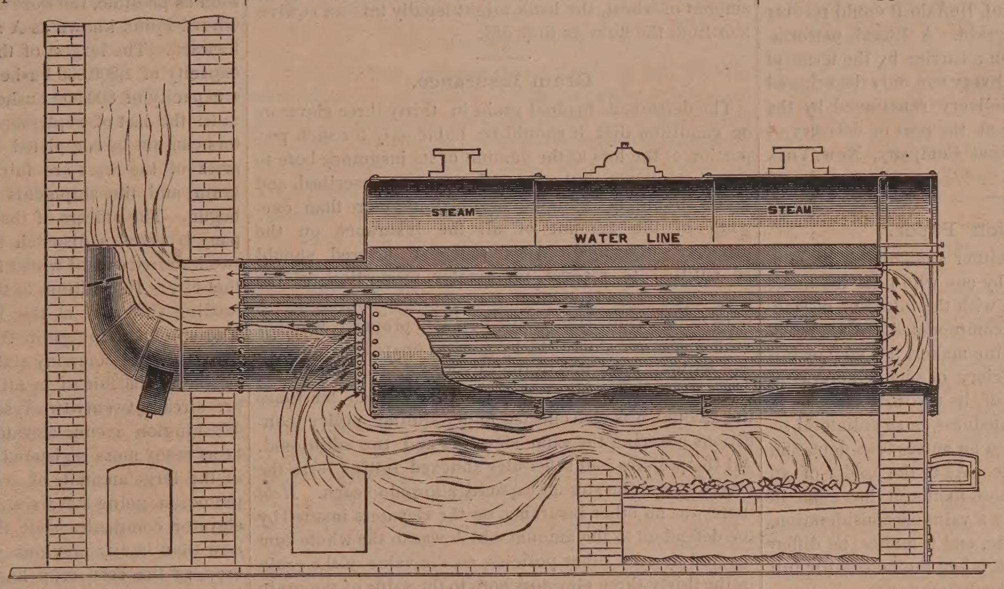
The agitation for free canals in New York State is creating quite an interest in Canada, particularly in Montreal. It is conceded that if tolls are abolished on the Erie Canal the St. Lawrence route will be placed at a great disadvantage in competing for the grain trade of the West. Although the tolls on the Welland and St. Lawrence canals were reduced about 65 per cent. last year there was still a falling off in traffic as compared with previous seasons. Increased railroad facilities and low rates of carriage are supposed to have caused in some degree the falling off, but the Canadians consider that the St. Lawrence being the natural outlet from the West to the Atlantic, the bulk of Western grain for export should come via. Montreal. If the free canal amendment is adopted by the people of New York State at the autumn elections, the Canadian Government will have no alternative but to abolish all tolls on the Welland and St. Lawrence canals. It is also stated that with even free canals Montreal and the St. Lawrence route would still be handicapped unless the present harrassing and cumbrous grain bonding system is abolished and American grain allowed to pass unrestricted through Canadian territory. The newly mooted project to connect Lake Superior by a canal with the lakes and rivers flowing into Hudson Bay has added to the importance of the free canal discussion, and anxiety is felt lest the grain trade of the Canadian Northwest should be diverted through American channels. The ambition of Montrealers is to have the entire grain export of the American and Canadian Northwest brought to that port for ocean shipment.

The Wabash Grain Elevator Co., St. Louis, Mo., has been incorporated with a capital stock of $200,000.

The new Dayton & Michigan Elevator at Toledo, Ohio, is being furnished with six sets of the Coker Power Shovels for unloading cars. The Webster & Comstock Mfg., Chicago, Ill., have the contract.

IMPROVED TUBULAR BOILER.

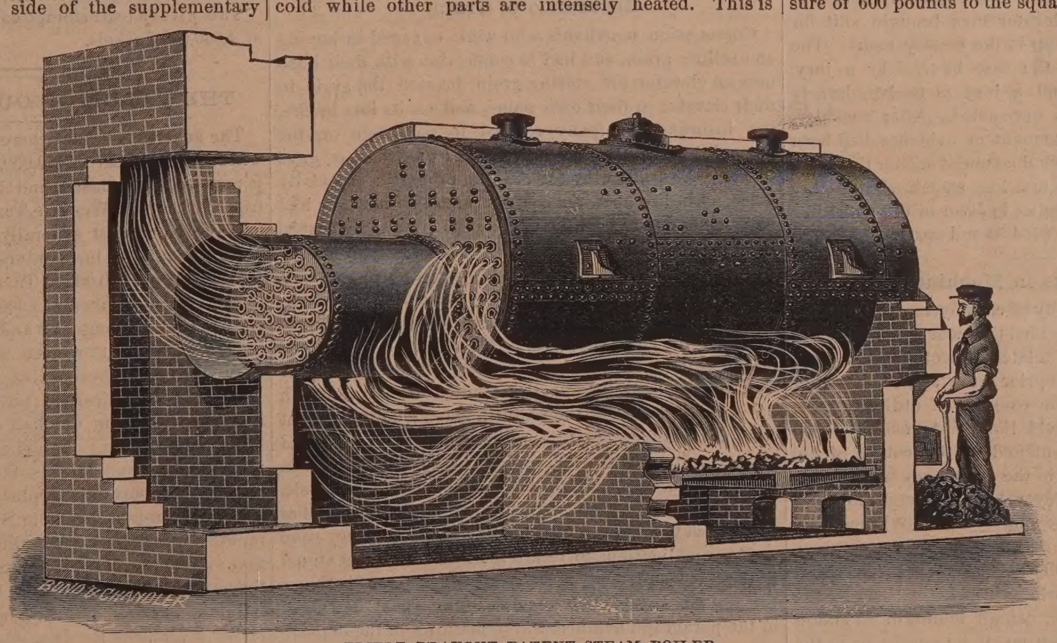
The accompanying cuts illustrate a Triple Draught Patent Steam Boiler which is in successful practical use in the East and which is now being introduced to western steam users by the Hawkins-Hennessy Boiler Co., 61 Market street, Chicago. The second engraving represents the boiler in action as it were, but with the side brick-work removed to exhibit the three turns of the flames under and twice through the internal parts. The first cut is designed to show the position of the tubes, the front and rear combustion chambers and the attachment of the rear cylinder, or dome to the flat end of the boiler.



TRIPLE DRAUGHT PATENT STEAM BOILER.

In construction this boiler differs from the well known type of horizontal tubulars only in the arrangement of the tubes, in which respect it is claimed to be a decided improvement. By it is secured the passage of the products of combustion through the same shell twice—forward through a part of the tubes, and backward through the remaining ones. The manner of accomplishing this result can be best described by explaining how a common tubular boiler may be remodeled so as to carry out the principle.

A cylindrical shell, of sufficient size to encircle about one-half of the tubes is attached to the outside of the rear head below the water line, and extended backward to the back wall of the setting. The encircled tubes are lengthened and carried backward to the same point; the extension is closed in and made to communicate freely with the boiler proper. The inner tubes emerge to the flue leading to the chimney. With this arrangement the outer tubes of the boiler—a cluster on each side of the supplementary shell—carry the products of combustion forward to the front smoke arch, and the inner tubes carry them backward to the chimney



TRIPLE DRAUGHT PATENT STEAM BOILER.

The main shell extends beyond the front head fourteen inches, and forms the side of the smoke arch. It is covered in front by a door, which furnishes access to the ends of the tubes for cleaning. The supplementary shell extends also beyond its head and forms the sides of the rear smoke bonnet, which communicates with the chimney flue.

The rear end of the combustion chamber is covered by an arch, which is carried above the supplementary shell so as to expose the whole outside surface to the heat. At this point the side walls are eight inches farther apart than at other points.

It is well known in the practical operation of steam boilers that an incredible quantity of costly steam producing heat is wasted up the chimney—accurate observation has ascertained this to be in special cases as great as one-half the value of the fuel. The average loss from this source, it is conceded, is from one-quarter to one-third of the fuel. To effect a saving of this waste has been a standing problem with practical scientists for years. In England there are thousands of ingenious devices in use called economizers designed to effect this result. These are rows of tubes similar to boiler tubes arranged to absorb the escaping heat. They are quite effective being placed in the draught after it leaves the boiler, recovering a large proportion of the loss,

The boiler here described is claimed to effect the same result—except in larger degree--as the English economizers. It returns the hot and wasting gasses again through the boiler and causes their absorption into the water for steam producing purposes.

The older the boiler the more essential becomes this process, as the natural incrustation and loss of vitality causes a greater waste up the chimney and increases the necessity of the return. In practice this boiler has been found to save one ton of coal out of five and is related to the common tubular boiler as the Corliss and kindred engines are related to the ordinary steam engine. In practice the furnace shows a high temperature with a gradual reduction until the gases finally enter the chimney with just heat enough to create a good draught. The equal expansion caused by the triple return of the gases in this boiler is a great advantage. Many boilers are annually ruined by parts remaining cold while other parts are intensely heated. This is avoided by the peculiar construction of this ingeniously devised boiler.

To the foregoing may be added these other points of advantage—1st ease of access, 2d simplicity of construction, 3d durability, 4th cheapness, 5th economy in space, 6th ease of care.

The boiler is no experiment as may be evidenced by warm and hearty testimonials given by owners of steam establishments and engineers in charge, having them in daily use found in an attractive 20-page circular issued by the Hawkins-Hennessy Boiler Co. Parties interested should send for this valuable issue as it contains a deal of useful information suitable for those about to build or change their steam machinery.

Geo. A. Wheeler, grain broken, this city, has suspended.

MAKING JUTE BAGS IN CALIFORNIA.

In the state prison at San Quentin, Cal., they have a jute factory for making grain bags. The fiber used at the prison is imported direct from Calcutta. It is quite coarse, is six or eight feet long, and is tied up in bundles, each of which weigh about 400 pounds. Before it is ready to be woven into cloth it passes through several complicated machines, which reduce in to the fineness and softness of silk, yet when spun into yarn it presents that coarse appearance all are familiar with who are acquainted with burlaps. There are 100 looms in the factory, besides spinning and other machines, all of superior quality and marvelous workmanship. Only a portion of the looms are at present used, 115 convicts, four skilled foremen and 24 freemen being employed in running them. As soon as practicable all the looms will be put in operation, when about 400 men will be employed in the factory. There being but few workmen in the state skilled in weaving jute cloth, several Chinamen, who formerly worked in the Oakland jute factory, are and will be employed until the convicts are instructed in the workings of the machinery. As a matter of course the employment of these free Chinese has excited much opposition from various quarters, but it is the intention of Warden Ames to keep them only so long as is necessary for the instruction of others, when convicts only will be employed. Fifty thousand sacks per day will be manufactured when the works shall be run to their full capacity. After the cloth is woven it passes over and under a series of large rollers—termed a calendar—which exert a pressure of 600 pounds to the square inch, making the fabric more pliable, at the same time stretching it at the rate of one yard in ten. Then after passing through a finishing machine, it is run through a cutter, where revolving knives rapidly clip the cloth into suitable lengths for bags. These will all be sewed by hand in the best manner.

The opposition encountered in the establishment of this factory has been principally by parties interested in the Oakland jute factory, but such jealousy is needless. It becomes evident to the authorities that when the system of contract labor should cease (December 31, 1881), that a large number of prisoners would have little or nothing to do. After much consultation, it was decided to inaugurate the manufacture of burlap sacks, as that industry would interfere less with the industry of the free laboring man throughout the state than any other. Present appearances indicate that the plan was a wise one. There is little fear that the state factory will injure the trade of the one in Oakland, for both together cannot begin to supply the yearly demands, which amounts to about 30,000,000 sacks. The annual production of Oakland works is about 3,000,000.

The Minnesota and Dakota Elevator Co., with head quarters at Minneapolis, have purchased of the Barnard & Leas' Mfg. Co., of Moline, Ill., separators for three elevators and warehouses at Walcot, Dakota, Portland, Dakota and Cedar Water, Minn.

Legal Notes.

Delivery of Grain.

A propeller carried 27,000 bushels of wheat to Buffalo, of which 7,000 bushels were consigned to B, who directed the carrier to discharge his wheat into a certain elevator. But this the carrier refused to do, discharging the entire cargo into another elevator. B then removed the wheat to the elevator designed by him and sued the carrier for the expense. Held, as the delivery was in violation of a custom and usage at the port of Buffalo B could recover the expense of removing the grain. A literal performance of the duty imposed upon a carrier by the terms of the bill of lading as to the delivery can only be excused by showing a substituted delivery sanctioned by the usage of trade and commerce at the port of delivery.—Richmond vs. Union Steamboat Company, New York Court of Appeals.

Accommodation Paper.

Accommodation paper is either a negotiable or non-negotiable bill or note made by one who puts his name thereto without consideration, with the intention of lending his credit to the party accommodated. As between the party accommodated and the maker, the note or bill is not collectable. The beneficiary of such a note without restriction as to the mode of its use, may transfer it, either in payment of his indebtedness, or as collateral security for a concurrent, or even an antecedent debt, and the maker will have no defense. As to the holder of an accommodation note into whose hands it has come in the usual course of business for a valuable consideration, the maker will have no defense, and it makes no difference that the holder may have taken the note with full knowledge that it was accommodation paper.

Grain Buyers vs. Farmers.

About a year ago a case was tried at Monticello, Ill., which was considerable interest for grain buyers, millers, etc. An elevator firm at that place purchased a quantity of grain from two farmers, the contract being a verbal one; after the contract was made and before its delivery, markets advanced and the sellers refused to deliver the grain. The elevator men brought suit for damages. The case came up in the county court. The defendants requested that the case be tried by a jury. The judge acquiesced, and a jury of twelve, largely composed of farmers, was impaneled. After considerable debate and a large amount of evidence had been introduced, tending to show the sum at which the grain was contracted, and the actual loss sustained, the jury retired and brought in a verdict in favor of the plaintiffs, giving them judgment for $184.50 and costs.

Latent Defects in Machinery.

As bearing on the liability of employers, the Supreme Court of Wisconsin has decided that where the injury to the servant is the result of a latent defect of machinery, of which the master has no prior knowledge, and which was not discoverable by the exercise of ordinary care, such master will not be held liable. An employe cannot recover for an injury suffered in the course of his employment from a defect in the machinery used by his employer, unless the employer knew or ought to have known of the defect and the employe did not know of it, or had not equal means of knowledge. An employe who has knowledge of defects in machinery about which he is employed, or who might know them by the exercise of reasonable care, cannot maintain an action for injuries resulting therefrom, if he continues in the employment without objection.

Warehouse Receipts.

Millers who were engaged in manufacturing flour, mixing for the purpose red and white wheat and who had wheat in store for the purpose, and who were receiving wheat in store for others and issuing warehouse receipts therefor, applied to a bank for a loan, and were allowed the loan on condition of their giving a warehouse receipt for 18,000 bushels of wheat as security. They gave the receipt accordingly, stating therein that they had received in store 18,000 bushels No. 1 white winter wheat and No. 2 red wheat, the same or an eqivalent in flour to be held for the bank as security for the payment of a note of $20,000. The millers subsequently failed in business, having put a fraudulent mortgagee in possession, and the bank replevied from him such wheat as was found in store—3,000 bushels No. 1 white winter—and took flour manufactured from wheat in store for the remainder. Upon these facts the Supreme Court of Michigan held: 1. That a warehouseman could make a valid pledge of grain in store by issuing a warehouse receipt therefor, without the ceremony of making actual delivery of the grain. 2. That the pledge in this case was not invalid because of its specifying two kinds of wheat, but that the pledge was entitled to take an equal amount of each kind. 3. That, not finding the requisite amount of wheat, the bank might legally take an equivalent from the flour as they did.

Grain Insurance.

The defendant insured grain in thirty-three elevators on condition that it should be liable only for such proportion of the loss as the amount of its insurance bore to the whole value of the insured property described, and that it should not be liable to contribute more than one-tenth of the amount of all the insurance on the property described. Also, that the insured should be entitled to recover no greater proportion of the loss from defendant than the amount insured by it bore to the whole sum insured on said property, whether such insurance should be by general or specific policies, and without reference to the solvency or liability of the other insurers. Other insurance to more than ten times the amount was also effected under similar policy conditions covering the same elevators and two additional. All the policies had schedules annexed setting forth the elevators and the storage capacity allowed to each. *Held* there was no other insurance on the elevators insured by the defendant to the amount which was to the whole sum insured by such other policies, as the value of the grain in the thirty-three elevators bore to the value of the grain in all the elevators. Also, that this amount was the proportion in which the more general policies were liable to contribute with defendant where such contribution would fully imdemnify the insured.—Barnes & McGill and David Dows & Co. vs. Hartford Fire Insurance Company, United States Circuit Court, District of Minnesota.—Quoted in St. Louis *Commercial Gazette*.

Insurance of Grain.

Commission merchants who were engaged in buying and selling grain, and had in connection with their business an elevator for storing grain, insured the grain in their elevator in their own name, and on its loss by fire, the insurance company refused to pay them on the ground that they had not such an ownership as gave them an insurable interest in the property, especially when, as in this case, the contract under which they had received and then held the grain, stated that the wheat in store is subject to their charges, and the risk of loss by fire was with the owner. In this case, Baxter vs. Hartford Fire Insurance Co., decided by the United States circuit at Indianapolis, Ind., in June, Judge Graham, in defeating the company, said: The contract between the plaintiffs and the depositors was, not that the latter should on demand receive the identical wheat stored in the elevator, but that the plaintiff should deliver wheat equal in amount and grade to that deposited, or account for its value. Being authorized to sell the wheat on their own account as fast as it was deposited in the elevator, I think the plaintiffs had such an interest in it as authorized them to insure it for its full value. They were under no obligations to return the identical wheat stored in their elevator, and no one expected them to do so. But, on the theory that the title to the wheat described in the paragraph demurred to, remaining in the depositors, and that they took the risk of loss by fire under their contracts with the plaintiffs, still the latter were liable for its value, if fire should result from carelessness on the part of their employees, and they had a right to protect themselves against this liability by insuring the wheat for its full value.

The New York Central, the Erie, and the Pennsylvania railroads' elevators notified the New York produce exchange that after July 20, on all grain arriving and delivered direct to ocean vessels, an additional charge of one cent per bushel will be made. This order was made to conform with the recent circular of Commissioner Fink providing equal rates for elevating and storage at all the seaport cities. It will affect 20 per cent only of the grain arriving at that port, that being the amount delivered direct to ocean vessels.

PHILADELPHIA'S GRAIN TRADE.

Mr. Rowley, agent of the Girard Point Storage Company, thinks that the amount of grain to be handled this year will be the largest in the city's history. The *Record* of that city says: "In 1876 14,800,000 bushels of grain passed through our elevators, and as we expect to exceed that business this year, it would not be unreasonable to say that the total of this year will reach 16,000,000 bushels. This enormous business will require both day and night work at the elevators, and in order to be ready for it as soon as possible, the work upon the two new elevators at Girard Point, known as A and B, is being rapidly urged forward. The largest of these is B, which is to have a capacity of 1,200,000 bushels, while the other will have a capacity of 800,000 bushels. It will not be completed until the last of September. The work on these elevators can not be completed any too quickly, as the granaries of the west are fairly bursting with the golden grain and the shipments to the seaboard have fairly begun. The officers of the Girard Point Storage Company received a dispatch from Pittsburgh stating that two hundred cars of wheat for elevator B had just passed that city. In addition to this seventy-five cars were unloading yesterday at the Washington avenue elevator. The shipments of grain from this port in August, the officers of the company state, will be immense, and the business bids fair to be all that can be handled. There are already twenty-two vessels registered to load at the Washington avenue elevator this month, and there will be as many more registered in a week. This is exclusive of the large amounts of grain that will be taken out by the ocean going steamers. The officers of the different elevator companies state that they are better prepared now than in any previous year to handle a large wheat crop, as the corn crop has been disposed of and they have no incumbrances. The storage capacity of the different houses and elevators in this city devoted to grain storage, and which may be relied on this year, are estimated as follows:

	Bushels.
Elevator B	1,200,000
Elevator A	800,000
C or Washington avenue elevator	450,000
Barges for surplus	100,000
Richmond elevator	800,000
Grain depot at West Philadelphia	400,000
Twentieth street elevators	300,000

This gives a total storage capacity in this city for grain of 4,050,000 bushels.

THE VALUE OF OUR WHEAT CROP.

The general fact that there is a marketable crop of wheat for this year of 450,000,000 to 500,000,000 bushels is now well established, and it is worth to the farmers from 90 cents in Western Texas to $1.10 in Minnesota and the Northwest generally, On the average it will realize a dollar to the producers, and the salable surplus with bring $10,000,000 to Texas, $5,000,000 to Arkansas, $20,000,000 to Kansas, $15,000,000 to Missouri, and $5,000,000 each to Kentucky and Tennessee—together $60,000,000 to the Southwestern States, as they may be distinguished from those whose immediate markets are in Northwestern cities and towns. In each of the States named one-third to one-half of the crop is reserved for local consumption. By a similar calculation Nebraska, Iowa, Dakota and Minnesota produce about 50,000,000 bushels of exportable surplus—75,000,000 bushels being the whole crop in these four States, as shown by the latest reports, thus reserving one-third for the local consumption. In the next group of States east of the Mississippi the aggregate is still greater, but the local consumption will take one-half, and the marketable surplus would be about 20,000,000 for Illinois, 10,000,000 for Wisconsin, 15,000,000 Indiana, 15,000,000 for Michigan and 18,000,000 for Ohio—78,000,000 in all, worth to the producers $85,000,000 at least, or worth that to these producing States as a salable surplus to other States or other countries. A liberal calculation for surplus wheat might be made for Maryland and probably for Pennsylvania, but estimating that all the abundant crops for the present year in the Southern and Central States would not create any considerable surplus, we still have for the West, exclusive of California and Oregon, the immense resource of 258,000,000 bushels of wheat, worth to those States $258,000,000 in exchange for the produce manufactures, or cash of other States and of foreign countries. If we reduce this sum a little or take $250,000,000 as the surplus value of the wheat crop of 1882, it is fully $150,000,000 greater than the like surplus of 1881.

Mechanical.

Purification of Expended Lubricating Oil.

It is found that the purification of expended lubricating oil is not only practicable as a scientific process, but may be made a matter of economical advantage as well. One of the means resorted to for accomplishing this is to procure a tube of about sixteen gallons capacity, supplied with one spigot at the bottom and one about four inches above; into this are placed six and a half quarts of boiling water, and there are then introduced 2,000 grains of chromate of potash, 1,540 of soda, 1,920 of chloride of calcium, and 3,840 of common salt. To this are added fifty quarts of oil to be purified; stir thoroughly for five or ten minutes, and after standing perfectly quiet for a week in a warm place, the clear oil is drawn off by the upper spigot. The plan is found to produce on the whole the most satisfactory result by the most simple means.

Cleaning Out the Boiler.

Clean out the boiler at least every two months, and oftener if the water be sedimentary. Remove all the scale and sediment as well as the fine dust and soot. Pass through the flues and see not only that all the soot and fine dust has been removed, but the plates have been well brushed. Also, see whether the flues are damp or dry, and if damp, find out the cause. Further, see that the thoroughfares in the glass water gauges and in the blow-out elbow pipe, as well as the thoroughfares and the performances in the internal feed dispersion pipe and the scum pipe are free. Take the feed pipes and scum troughs out of the boiler if necessary to clean them thoroughly. Take the taps and feed valves to pieces, examine, clean and grease them, and if necessary grind them with a little fine sand. Examine the fusible plugs. Do not put any blocks under the pipe in the hearth pit. Putting blocks under the pipes in the hearth pit robs them of their spring, strains them, and sometimes breaks them.

Heated Journals.

The best remedy for cooling heated journals is to pour cold water on them, and in marine engines they have special arrangements for running a current of cold water around the journal boxes when heated. Flour of sulphur mixed with the lubricants is also used for cooling journals. It is very difficult, if not impossible, to find any metals for journals and boxes which would not become heated under the transmission of sufficient power; but within the limit of ordinary practice, cast steel journals well fitted in boxes of phosphor bronze or cast iron, are the best yet known. The larger the area of the journal the less liable it should be to heat, but the contact area is proportionate to the diameter multiplied by the length of the journal, from which it appears that the longer the journal is, the less liable it is to heat, but such is not the case. Beyond a certain limit, long journals are very difficult, and sometimes impossible, to keep in proper contact in the boxes, particularly when the boxes are rigid, and they are therefore more liable to heat than those of the ordinary length, namely, one and a half diameters.

Shafting out of Line.

Shafting is not liable to get out of line horizontally, unless from the strain of belts; it is, however, well to line up as often as twice a year, to be sure that all is right. It has been in times past a common thing to allow shafting to run as long as it would go without adjusting, and then stop the works for a day or two to line up, which is unnecessary and only a loss of time. A shaft may be leveled by almost any one when the hangers are properly made, and can be done at noon, or after stopping in the evening, without interfering with the business at all. To line a shaft horizontally is but little more trouble, if the bearings or hangers can be moved in that direction. Suspended hangers should have the bolt-holes slotted for an inch or more of movement, and post-hangers should have movable bearings that permit side adjustment. Assuming that there is some means of moving the shaft horizontally, a good plan of adjusting it is by suspending a number of plumb-lines that will bear against one side of the shaft, and reach down low enough to be sighted from the floor; or, for greater accuracy, a strong line may be stretched about five feet from the floor to gauge the plumb-lines from. This lower line can at the beginning be set within about one-eighth of an inch of the two plumb-lines at the ends, and the rest can then be adjusted to the same position by moving the bearings, or the end bearings can be also adjusted, as the case may require. A ball of strong packing thread, and half a dozen or more old screw nuts for the plumb-lines, make the outfit, and the job can well executed, at but little expense and time, if the hangers are properly made and erected so as to be adjusted without trouble.

Shafts and Belts.

In the location of shafts that are to be connected with each other by belts, care should be taken to secure a proper distance one from the other. It is not easy to give a definite rule as to what this distance should be. Circumstances, generally, have much to do with the arrangement, and the engineer or machinist must use his judgment, making all things conform, as far as may be, to general principles. This distance should be such as to allow of a gentle sag to the belt when in motion. A general rule may be stated thus: Where narrow belts are to be run over small pulleys—15 feet is a good average—the belt having a sag of 1½ to 2 inches. For larger belts, working on larger pulleys, a distance of 20 to 25 feet does well, with a sag of 2½ to 4 inches. For main belts, working on very large pulleys, the distance should be 25 to 30 feet, the belts working well with a sag of 4 to 5 inches. If too great a distance is attempted, the weight of the belt will produce a very heavy sag, drawing so hard on the shaft as to produce a great friction in the bearings, while at the same time the belt will have an unsteady, flapping motion, which will destroy both the belt and machinery.

Second Hand Machinery.

Paint and putty, varnish and polish may be made to cover very sore defects in material and build; and the voluble tongue of the seller and the urgent need of the buyer finish the job. In some cases—in many—the purchaser is not a good judge of the value of second hand machinery; it would be well if he could always trust to the knowledge, as well as the honesty of the dealer, but, as before intimated, the seller may not know practically the value of his own goods in use, but only their value to him as to profit in selling. There are second hand machinery and tools which are "almost as good as new," but which for various reasons have been "put out of court," and yet can do good service. There are concerns running to-day, successfully, on machinery that is forty years old. But there are opportunities for buyers to get good, solid, trustworthy tools and machines, if they use their own good judgment, or depend on that of a competent agent. The risk of injury to the trade in second hand tools and machines is that plausibility, paint and putty may take the place of honesty, integrity, and knowledge. The only safe men to trade with who run a second-hand machinery business are those who understand the nature and quality of the goods they deal in and deal with their customers fairly.

CORN YIELDS AND SHRINKAGE.

According to Geo. Geddes, a well-known contributor to the rural press, a retired farmer of long experience, at Longmeadow, Mass., is reported as having said that, according to his experiment, "100 bushels of dry corn on May 1 require 161 bushels at husking time," and he offers the free use of his best land, and the whole crop to anybody who will raise eighty bushels per acre of dry shelled corn weighing 60 pounds each; for 90 bushels the whole crop and 10 cents premium; for 100 bushels the crop and a premium per bushel of 15 cents. The greatest quantity of corn that may be raised on an acre in one crop, is ene of the points about which farmers constantly disagree. Reports are made and believed, of much more than 100 bushels, and premiums are awarded for yields that appear to many sober men as fabulous. This disagreement grows largely out of the want of a standard of measurement. Corn just husked, soft and green, full of water, is weighed, and 70 pounds of ears reckoned as equal to one bushel of shelled corn, and a great yield is reported. In fitting such corn for being sold to ship to a far off country, it may shrink as much as the Longmeadow farmer says. At any rate, it will shrink in weight so much as to entirely do away with any value whatever of such measurement. Corn fit to crib will, he says, shrink from 20 to 25 per cent. in drying so as to be fit to grind into meal, and 70 pounds of ears will not make a measured bushel of corn, even when entirely dry, as extensive tests made by the Onondaga Farmers' Club this spring, have shown. Seventy-five to 80 pounds are required to make a measured bushel, and when dry, a measured bushel of corn will weigh fully 60 pounds. He further remarks that he has never seen 6000 pounds of corn, if weighed when dry enough to make good meal, raised in one crop on an acre of ground, and has been looking for it many years, and once thought he had produced it, but the first measurement (in the ear) gave 95 bushels, the next only 80, and this he supposed to have been the best acre he ever raised. This discussion about the greatest yield can never be settled until we agree upon a standard of measurement, and it appears fair to make that by weighing shelled corn when sufficiently cured to be fit to send to Europe in the hold of a ship. It is very easy to raise 100 bushels to the acre of corn, on paper, but when will some one weigh out the 6000 pounds, fairly produced, of corn fit to ship, from one acre of ground from one crop?

A FRENCH IDEA IN PRESERVING GRAIN.

Gallic ingenuity has produced a method of preserving grain which has been found to be economical of space and cost, and very efficient. It is described as being simply a sheet-iron cistern, occupying little space, and which holds nearly 300 bushels, and is worked by an air pump, with a pressure gauge to indicate the degree of vacuum, comprise the whole hermetic apparatus of preservation. Experiments made of late at Vincennes showed that, after a detention of seven months, the wheat, the flour and the biscuit inclosed in the apparatus were in a perfect state of preservation. Bread made from the flour inclosed in it turned out to be of an excellent quality. The cost price of preservation is much less than storage in a granary. The cylinders are as impermeable as pits, require no masonry, and can be placed anywhere. Wheat is safe from fire, fermentation, insects, and cryptogamic vegetations. The vacuum, it is stated, not only kills the parasitic insects and prevents vegetation, but dries the grain at the same time.

GRAIN BAGS IN CALIFORNIA.

A California paper says that the imports of Grain Bags, both Calcutta and Dundee, have been very light this year, as compared with the two or three previous seasons. Last year there were received from Calcutta by seven sailing vessels some 22,000,000, and by steamers about 10,000,000, making a total from that port of 32,000,000 Bags. This year there are not expected to arrive by sail and steamer over 12,500,000, according to estimates of those in the trade. Nearly 6,000,000 Bags and yardage were received last season from Dundee, while it is claimed that the shipments from there this year will hardly reach 2,000,000. The carry-over stock from last season was considerable, but it is now calculated that the full supply for this year's wants will be at least 15,000,000 to 16,000,000 less than last year's. Whether these these figures are correct or not it is evident that holders are encouraged by the prospect of large requirements from Oregon and Washington Territory, together with those of this State. The Barley crop particularly will consume a very considerable quantity this year. Last year's consumption of new Bags was estimated at over 31,000,000, as follows:

Wheat crop, California	18,000,000
Barley	4,500,000
Oats and Rye	1,200,000
Corn	1,500,000
Yardage used for baling, making Bean and Salt Bags, etc.	1,000 000
Resacking old Wheat	500,000
Shipments to Oregon and Washington Territory	4,000,000
Shipments to Hawaiian Islands, etc	600,000
Total	31,300,000

For Corn, Oats and Barley, and resacking Wheat, in addition to the above, probably some 2,000,000 to 3,000,000 of second-hand bags found use. The Corn crop last year could not have been much short of 4,500,000 bushels, or the Oat crop 4,000,000.

Mr. Herman Nunnemacher, of Milwaukee, Wis., whose case growing out of a grain deal with Chicago parties was decided against him by the Chamber of Commerce Board of Appeals, has placed the matter in the hands of an attorney. It is expected that the whole case will be revived in court.

Fires.

J. N. Gregory, grain dealer at Brooklyn, Ind., is reported burned out, with some insurance.

The elevator at Grove City, Minn., belonging to C. E. Lindberg, was burned on the night of July 26. It had a storage capacity of 60,000 bushels. Partially insured.

Paxson & Seeds' Elevator, at Manchester, Iowa, containing about 4,000 bushels of grain, was burned Sunday night three weeks since. Loss $10,000; insurance $4,000.

On the morning of July 18, fire was discovered in the grain elevator of H. C. Goodell at East Atchison, Kansas. New machinery had just been put in and the whole building overhauled to meet the needs of the present grain crop. Loss, $16,000; insured for $3,500,

Fire at Anamosa, Iowa, on the evening of July 19, consumed the elevator owned by J. H. Davis and in process of removal by the Chicago and Northwestern Railway Company to their new station, at Kirknan, Iowa. One-third had been demolished for that purpose. Loss, $2,500; no insurance. The policy had expired a week before.

A fire occurred at Markdale, Ontario, July 25, resulting in the total destruction of two elevators and their contents. The fire originated in the elevator of Mr. J. McFarland, near the railway station, which rapidly became uncontrollable and attention was wholly directed to saving the elevator of Messrs. Hill Bros., on the opposite side of the road. All efforts failed and it was soon enveloped in flames. The water was distant several hundred yards. The burning embers endangered the village and large quantities of lumber—some 80,000 feet—piled to the north of the elevators. The telegraph wires were melted and rendered useless. Mr. McFarland's loss was about $15,000. His elevator contained 6,000 bushels of fall wheat, $1,000 worth of timothy seed, and a quantity of oats, barley, peas, etc., to a great extent covered by insurance. Messrs. Hill's loss was nearly 10,000 bushels of fall wheat only partly insured. The fire is considered as undoubtedly the work of an incendiary.

HAZARD OF GRAIN ELEVATORS.

The *Investigator* of this city has the following article in reference to the hazard of the Chicago elevators:

" The Insurance Patrol of this city has for some weeks past been quietly but thoroughly investigating the grain elevators, and finds that the most censurable neglect in the matter of precautions against fire exists, and that the appliances required for extinguishment are, as a rule, absolutely worthless. The watchmen's clocks, designed to detect any neglect of duty on the part of the watchman employed, are for the most part useless; the shaftings of the driving machinery are many of them bent badly, causing heated journals; the oil used in the machinery is allowed to drip recklessly on the floor and mix with dust and waste, promoting the conditions for spontaneous combustion, and pumps placed in position originally for use in case of fire are found rusted and absolutely worthles. Besides these defects, the hose is for the most part rotten and insufficient in size, and the only means of access to the tops of the elevators, where the most danger exists, is by a single passage on the inside, where no fireman ought to be allowed to venture. It is expected that unless there shall soon be a general remedy applied to these defects the rates will be largely increased or insurance altogether withdrawn. As things now are, a big fire may be looked for any day in any one of our dozen mammoth elevators under conditions rendering the work of the fire department of no avail.

ROUGH ON ST. LOUIS.

A convention of grain buyers, representing all the territory lying west of Creston, Iowa, extending to Council Bluffs, and south of Creston and west of Maysville, Mo., to the river—in all over seventy firms—was held at Sherandoah, Iowa, on August 1. One object of the meeting was to express their indignation at the treatment shippers received at the hands of unscrupulous parties in St. Louis. The shortage in weights and classification of grade by the inspectors has been equal to daylight robbery. It was

Resolved, That it is the sense of this meeting that we no longer submit to the indignities heaped upon us by the sharks in St. Louis, and from this day henceforward we ignore the St. Louis market and ship all our grain to Chicago, where we are sure of proper weight and grade.

The resolution was signed by seventy-two grain buyers.

ELEVATORS AND THE RAILROADS.

A circular of the St. Paul, Minneapolis & Manitoba Railroad containing a general regulation in regard to the capacity of the elevators or warehouses erected on ground owned by the company, to the effect that it must not be less than 30,000 bushels, and that such building not so constructed shall be enlarged to a minimum capacity as stated, or removed, has given rise to legal action and a decision in a case appealed to Judge J. H. Baker, state railroad commissioner of Minnesota. Mr. W. T. Wells has a 10,000 bushel elevator at Benson, Minn., located on his own ground. He had for some time the privilege of shipping by the carload in cars furnished by the company on side tracks, loading from wagons, until lately when he was notified by the company that the arrangement could not continue, and referring to the " general regulation " mentioned above. The decision is adverse to the action of the railroad which in this instance seems to have transcended the terms of the circular as to the ownership of the ground on which the elevator stood. Judge Baker's decision states the law in the case as follows: Every railroad, as a common carrier, is obliged to receive and ship all the grain offered, and cannot choose its customers, if it has the requisite conveniences and is offered a reasonable price; and if it refuses without some such ground it is liable to action. The regulation of the Manitoba road requiring the shipper to build a certain sized elevator is not reasonable or sufficient excuse for refusing his grain. Inability to furnish the required cars would be a justifiaction for a refusal, but the shipper would be entitled to the use of his proportion of those which the capacity of the road's rolling stock left for its patrons at that place. The inconvenience and somewhat greater expense of loading from wagons instead of from an elevator cannot prejudice the party's legal rights. On the equity of the case Judge Baker held that any restriction upon the rights of the general public by the authority of the railroad is prejudicial to public interests, and would subject shippers to a railroad control that would destroy their independence. The independent buyer regulates the local price of wheat and public policy requires that he be encouraged. Similarly the small amount of wheat we sell in Liverpool sets the price for the whole crop. This independent buying is a check to monopolies. The interests of railroads should be limited to transportation. To compel shippers to build elevators by their authority would make this mode of shipping a monopoly whose control might be in the hands of those who owned the roads. Thus it is especially desirable that elevators should be free from railroad control.

Mr. Manvel, the general manager of the Manitoba road, was interviewed by the *Pioneer Press* upon this subject, and stated that the circular was not a reply to Gen. Baker as it had been previously written, but its publication delayed. The crop anticipated is very large and the company desire to have the facilities to handle it and accommodate its owners. The small elevators occupy the most available locations of the company's land and the ground on which now are buildings which hold but two or three car loads could be used by elevators of 50,000 bushels capacity. The slowness of the process of handling the wheat by shoveling into cars subjects the road to great loss of time, and by the detention of cars makes it impossible to take care of the large amount of grain which seeks transportation after harvest. Mr. Manvel denies entirely that the railroad has any interest in the elevators either as owners or partners in their ownership.

GRAIN EXPORTS OVERLAND FROM CALIFORNIA.

The first export of wheat from California via New Orleans was made June 15, amounting to 84,000 bushels and shipped thence in two vessels. This grain was carried by the following railroads: The Southern Pacific, the Texas & Pacific; the Houston & Texas Central; the Texas & New Orleans, and Morgan's Louisiana & Texas road. The total distance was 2,561 miles. By means of different branches in Texas the distance will be lessened some 70 miles, while earlier in the season more than 100 miles could be saved by shipping from the San Joaquin Valley; even then the haul is nearly twice the distance from St. Paul to New York. Several considerations enter ino the reply to the question, will it pay? The rate of charges probably does not more than cover the additional expense of the carriage of this freight over all other costs. The advantages to be gained must then furnish the compensation and inducement. The ocean rates of late have sometimes been too high to encourage the cultivation of grain in California for export, and thus been an hindrance to its prosperity. Most of the carrying of the State, except that of wheat to Liverpool, is done by the Southern Pacific, the interests of whose owners are thus identified with its growth. If these ocean rates can be kept down by this railroad competitian, the increased business will give the latter the compensatory profit. This road has during the past few months carried considerable quantities of wheat to the East, some to Denver, and some to St. Louis, a distance of about 2,600 miles. But these shipments were for domestic use. Still they have probably opened the way to these large trans-continental shipments by the Southern Pacific, which in May exceeded those by the Central Pacific.

CHANGE IN RAILROAD CHARGES.

An agreement has been entered into by the railroads running east from this city, providing that from September 1 an extra charge of $2 per car will be levied against all grain loaded at elevators or grain warehouses in Chicago for shipment east. It is further provided that the railroads will not furnish the men for loading freight at the packing houses nor at any of the private sidings in and around Chicago. Neither will they assume the expense of such loading when performed by the shippers or their employes. This will restore the charge made by the railroads up to two years ago.

WEIGHT OF THE BUSHEL.

The following table gives the weight of the bushel of the agricultural produce, etc., as established by law in the United States, Territories and British Provinces, compared with the most recent enactments:

	California.	Canada.	Connecticut.	Dakota.	Delaware.	Illinois.	Indiana.	Iowa.	Kansas.	Kentucky.	Louisiana.	Maine.	Maryland.	Massachusetts.	Michigan.	Minnesota.	Missouri.	Nebraska.	Nevada.	N. Brunswick.	N. Hampshire.	New Jersey.	New York.	Nova Scotia.	Ohio.	Oregon.	Pennsylvania.	Rhode Island.	Vermont.	Washington Ter.	Wisconsin.
Apples	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	45	--	--	--	45	--
Barley	50	48	48	48	--	48	48	48	48	48	32	48	--	48	48	48	48	48	50	50	--	48	48	52†	48	46	47	--	48	45	48
Bran	--	--	--	--	--	20	--	20	20	20	--	--	--	--	--	--	20	20	--	--	--	--	--	--	--	--	--	--	--	--	--
Broom Corn Seed	--	--	--	--	--	--	--	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Buckwheat	40	48	48	42	--	52	50	52	50	52	--	48	--	48	48	42	52	52	40	50	--	50	48	--	50	42	48	--	46	42	42
Carrots	--	60	55	--	--	--	--	--	--	--	--	50	--	--	--	--	--	--	--	56	--	--	--	--	--	--	--	50	--	50	--
Corn, shelled	52	56	56	56	56	56	56	56	56	56	56	56	--	56	56	56	56	56	52	60	56	56	58	58	56	56	56	--	56	56	56
Corn, in ear	--	--	--	72	--	70	68	70	70	--	--	--	--	--	70	--	--	70	--	--	--	--	--	--	70	--	--	--	--	--	--
Flax Seed	--	50	--	--	--	56	--	56	56	56	--	--	--	--	56	--	56	56	--	--	--	55	55	--	56	--	--	--	--	--	56
Grass Seed, blue	--	14	--	--	--	14	14	14	--	14	--	--	--	--	14	--	14	14	--	--	--	--	--	--	--	--	--	--	--	--	--
Grass Seed, clover	--	60	--	60	--	60	60	60	60	60	--	--	--	--	60	60	60	60	--	--	--	64	60	--	62	66	62	--	60	60	60
Grass Seed Hungarian	--	--	--	--	--	--	--	45	--	--	--	--	--	--	50	--	--	60	--	--	--	--	--	--	50	--	--	--	--	--	--
Grass Seed, millet	--	--	--	--	--	--	--	45	--	--	--	--	--	--	50	--	--	85	--	--	--	--	--	--	50	--	--	--	--	--	--
Grass Seed, orchard	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Grass Seed, red top	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Grass Seed, timothy	--	48	--	42	--	45	45	45	45	45	--	--	--	--	45	--	45	45	--	40	--	--	44	--	45	--	--	--	42	40	46
Lime, unslacked	--	--	--	--	--	80	--	80	--	--	--	--	--	--	--	--	--	80	--	--	--	--	--	--	--	--	--	--	--	--	--
Oats	32	34	32	32	--	32	--	33	32	33⅓	32	30	--	32	32	32	35	34	32	36	30	30	32	34	33	36	30	--	30	35	32
Pears	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	45	--	--	--	45	--
Peas	--	60	60	--	--	--	--	--	--	--	--	60	--	--	60	--	--	60	--	--	--	--	60	--	--	--	--	--	60	60	--
Potatoes, Irish	--	60	60	60	--	60	60	60	60	56	--	--	56	60	60	--	60	60	--	56	60	60	60	--	60	60	56	60	--	60	60
Rye	54	56	56	56	--	56	56	56	56	56	32	56	--	56	56	56	56	56	54	56	56	56	56	56	56	56	56	--	56	56	56
Sand	--	--	--	--	--	--	--	130	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sugar Beets	--	60	60	--	--	--	--	--	--	--	--	60	--	--	--	--	--	--	--	56	--	--	--	--	--	--	--	50	--	50	--
Turnips	--	60	50	--	--	55	--	--	--	--	--	50	--	--	58	--	--	55	--	56	--	--	--	--	--	--	--	50	--	50	--
Wheat	60	60	60	60	60	60	60	60	60	60	60	60	--	60	60	60	60	60	60	60	60	60	60	60	60	60	60	--	60	60	60
White Beans	--	60	60	60	--	60	60	60	60	60	--	64	--	--	60	--	60	60	--	--	60	--	62	--	60	--	--	--	60	60	--

General Items.

The *Inter-Ocean* suggests that the proper way to settle wheat contracts is to resort to a "mill."

The Buffalo Board of Trade has accepted plans for a seven-story structure, to cost $130,000, on the present site of the general offices of the American Express Company.

New York mercantile interests will lose no time to maintain water competition with all railroad routes in order to protect their interests against the competetive advantages of Philadelphia and Baltimore, which are looming up for a heavier proportion of the Western grain traffic.

The amount of tolls collected on the New York canals for the fourth week in July this year was $24,544.31. The amount for the same period last year was $24,845.98. The number of tons cleared during the week mentioned this year was 217,555, and the number for the corresponding week last year 219,907.

A dispatch from La Crosse, Wis., says that Judge Cameron, in the Probate Court, rejected the claim of Smith B. Lightner, of Chicago, against the estate of John Service. The claim was founded upon a promissory note for $6,000, given in 1879 to secure the claimant against loss in a grain deal. The court held that the claim was invalid, arising out of gambling transactions in grain, and that there was, therefore no legal consideration.

The first number of the American Elevator and Grain Trade, was issued from Chicago, July 15, and will be published on the 15th of each month, by the Mitchell Bros. Company, 184 and 186 Dearborn street, Chicago. A J. Mitchell is the business manager and Harley B. Mitchell, the editor of the new enterprise. The paper is neatly printed, and its editorial and selected matter betoken an experienced man at the fore. We wish the American Elevator abundant success.—*St. Louis Miller.*

The iron steamship Onoko, Captain Pringle, sailed from Chicago for Buffalo recently, with the largest cargo of grain ever taken out of that or any other lake port by any vessel, either steam or sail. She had on board 108,000 bushels of corn. When the Onoko was launched at Cleveland, there were many doubts as to whether she would be a success, but time has proven the wisdom and good judgment of those who put their money into the experiment. She has not only carried the greatest grain cargoes, but also the greatest amount of ore ever loaded on a vessel.

Wheat threshed in August which has undergone the sweating process in the stack and is "apparently dry" will not shrink six per cent. by February ordinarily, but may do so by the next August. In many parts of the west corn is bought in the fall at 4,250 cubic inches to the bushel in order to allow for shrinkage, which would seem to indicate that it is more than twenty per cent. The shrinkage of dry wheat is comparatively slight, but if it is damp, or positively wet, it is very great, and the farmer who owns it is wise in selling it at once. We cannot say as much for the miller who buys it.—*Northwestern Miller.*

The Shenandoah Valley Railroad drains an important grain country—the Valley of Virginia—where the wheat crop this year has been very good. This road is now handling a large amount of wheat, and the bulk of it ought to come to this market via the Western Maryland Railroad. It is stated that the shipments of wheat from Roanoke (formerly Big Lick) alone last year amounted to 250,000 bushels, Much of the wheat from that section goes to Alexandria and Richmond, but with proper efforts it could probably now be turned to Baltimore. Here is a chance for our enterprising grain commission merchants.—*Baltimore Journal of Commerce*

The cultivation of Indian corn has grown with rapidity. The census of 1840 gave a total crop of corn in this country of 377,531,875 bushels; that of 1850, 592,071,104 bushels; 1860, 538,792,742 bushels; 1870, 760,944,549 bushels, and that of 1880 as 1,754,861,535 bushels. In the matter of oats, authority records the crop of 1840 as 123,071,341 bushels; 1850, 146,584,179; 1860, 172,643,185; 1870, 282,107,157, and of 1880, 407,858,999. The total production of the bread grains—wheat corn and oats—during entire decades are even more startling. Thus during the ten years closing with 1850 we have an aggregate production of 867,453,967 bushels; during the decade closing with 1860, 1,239,039,947 bushels; closing with 1870, 1,387,299,153 bushels, and during the ten years closing with 1880 the enormous total of $2,697,962,456. The most marked increase has occured within the last ten years. The wheat crop has increased per capita from 5 to 9.1 bushels.

The great practical question of this country to-day is how to secure cheap transportation. The value of every farm and manufactory in the state depends on the cost of carrying products to market. The commerce and business of this city depend on the ability to bring the products of the interior to its warehouses and wharves more cheaply than similar articles can be landed at tidewater elsewhere. The cost of living here and the articles consumed by our people depends upon the rates for transportation, and has a vast influence on the price of labor. In fact, the necessity for cheap transportation is a vital one to the agriculture, the manufactures, the trade and commerce and even the labor of the land.—*New York Ex.*

The *Missouri Republican* remarks: "It doesn't take much figuring to see that Missouri and all the other great granger States of the Mississippi valley will be fairly rolling in wealth next winter when the returns of this year's abundant crops have come in. Estimates of the harvest yield are doubtless in excess of what will be the actual outcome, but, making all allowances, the prospect is still promising in the extreme. Here is Missouri, which, it is predicted, will gather 40,000,000 bushels of wheat, and it is fair to say that its wheat crop will bring the farmers at least not far from $30,000,000. This is wheat alone, and the corn crop remains to be allowed for, besides the long list of minor products which Missouri cultivates.

The commercial interests of New York are thoroughly aroused to the importance of securing free canals by constitutional amendment in the fall campaign. Nine commercial organizations were present recently at a meeting held at the Chamber of Commerce rooms, New York, and they organized themselves into "The Free Canal Union of New York." It is intended to direct effort in convincing the voters of the State, especially in rural sections, that taxation in order to maintain a free canal will be a lasting advantage. This movement is the natural result of railway enterprise. Terminal facilities have been greatly increased at Philadelphia and Baltimore, and Western shippers are finding they can export some products as cheaply by railroad lines terminating at these cities as at New York. This discovery is nerving New York commercial enterprise to greater effort in reducing cost of transportation.—*Philadelphia Ex.*

ABOUT BARLEY.

A smaller amount of barley in proportion to other grains is raised in the Northwestern States than in any other grain producing country, and yet it is a crop of some importance.

Pliny, the Roman philosopher and historian, says it was the first grain cultivated for human food. The corn which Jacob sent his sons to Egypt to procure, in the ttme of the great famine, was probably barley, for wheat had never been used as provender for work animals among any people, but the patriarchs found, each his money in the mouth of his sack when he opened it to feed his ass at the inn. Barley was the ordinary bread grain among the ancient Hebrews and Egyptians as well as among the more modern Greeks and Romans. The historians, however, generally use the generic word which we, following the English usage translate corn—the equivalent of our American word. Occasionally, however, we find the kinds of corn distinguished by their appropriate names. In the Hebrew scriptures, flour from wheat is usually distinguished by the term fine prefixed to it. Where it is not so distinguished we may safely infer that it is flour from barley.

Hordeum, is the botanical name of the family to which barley belongs. Three species of this genus have been recognized, though it is doubtful if the different kinds are more than well established varieties, such as we find in wheat. The common barley (*H. Vulgare*,) which is cultivated in Italy, Germany and France has its grains arranged in four rows with its chaff terminating in awns or beards. This is the barley that was cultivated in Egypt and Western Asia by the ancients, in which countries it still holds its place. The English barley (*H. distichon*) has its grains arranged in two rows and is beardless. It is said to have been originally introduced from Tartary. It is very productive and hardy, and adapts itself to almost any soil or climate. These are spring crops, being sowed as early as the ground is in a condition to be plowed—the crop perfecting itself in about 90 days of good weather. In warm climates two crops of bearded barley are often gathered from the same field in one year. The winter barley (*H. hexastichon*) has six rows of grains on the head, each terminating in a long beard. The grains are smaller than in the other species, but i is very productive. It is sown in September, and in this country ripens the first of June. Winter barley in this climate is a more certain crop than oats, though its yield is somewhat less. Spring barley is a good fallow crop.

Barley was probably the first bread grain of our race, and for ages held the first place in the food of the common people of the most civilized nations. The introduction of the American maize into Europe has in the present century greatly diminished the use of barley though it still retains its old position among the nations of the North, and in Scotland divides this honor with oats. The thick brittle bran of this grain is difficult to separate in grinding, and getting mixed with the flour gives it a dark coarse appearance. The process of hulling makes a fine appearing flour, but at a loss of much of the gluten, and is expensive. Pearl barley is excellent but cannot compete with rice on the market. For feed it stands between corn and oats, lacking the oil of the former, but possessing sugar in large amount, and closely approaching oats in its flesh forming elements. The principal use made of barley in our country is in the manufacture of malt. Should prohibitory legislation be efficatious in diminishing the demand for beer and thus of malt, the economy of its cultivation especially as a food grain will command greater attention.

ADVANCE ELEVATOR "B," AT ST. LOUIS.

The new Advance Elevator "B," has just been completed at East St. Louis by the Advance Elevator and Warehouse Company, of St. Louis, Mo., of which Robert S. McCormick is the president, and Charles H. Isaacs the superintendent. The designs were made by Messrs. J. T. Moulton & Son of Chicago, by whom the elevator was built. The building, located on the levee, is 140x143 feet, and about 150 feet in height above the railway level, and has a storage capacity of one million bushels which is just double that of the Advance Elevator "A." The machinery for elevating consists of twelve elevators, each provided with a rubber-belt twenty-two inches wide carrying cups 20x6 inches, and capable of elevating 6,000 bushels of grain per hour. Twelve Fairbank's scales are used for weighing, four of which are 700-bushel, four 600-bushel and four 350-bushel capacity. An elevated gallery connects the two Advance Elevators "A" and "B," enclosing a belt-conveyor, by which 10,000 bushels of grain can be transferred per hour. The machinery and appliances for unloading cars by means of steam power in shoveling is such, it is said, that two men can unload a car in five minutes, and with the improved spouting facilities a car can be loaded with grain by one man in three minutes, while the entire elevator has the capacity of shipping grain at the rate of 25,000 bushels per hour. The power for the elevator machinery is supplied by a horizontal Corliss Engine 30x48 inches, with three tubular boilers 5½x16 feet. The whole is enclosed in a commodious, substantially built brick engine-house.

HALF A MILLION BUSHELS PER DAY.

From the comprehensive tables prepared by Mr. S. H. Grant, Superintendent of the Produce Exchange, we figure out that during six months of 1881, when the canals, railroads, and lake and river navigation were all in active operation, the delivery of grain at New York City averaged very nearly half a million bushels for every working day. To comprehend the magnitude of these figures, we may suppose this grain loaded upon farm wagons, 40 bushels upon each, and a wagon and team occupying a space of fifty feet along a highway. The line would extend 118 miles for a single day's receipts, and for a hundred days only, it would extend 11,800 miles, or more than three times the distance across the continent, from New York to San Francisco. During the entire year 1880, the receipts of grain at New York alone reached the aggregate of 171,776,745 bushels. This, if brought by 40-bushel wagon loads, 500 feet to wagon and team, would require over four million loads (4,294,418) and the line extended 40,667 miles, or one and three-fifth times around the globe.

Elevator News.

J. S. Ross, grain dealer at Iroquois, Ontario, is dead.

E. Sheey, a grain dealer in San Francisco for several years, is dead.

Mr. Sanderson is building a 50,000 bushel house at Everest, Kansas.

Mr. George C. Lockwood is putting up an elevator at Hillsboro, Kansas.

Blair Bros., grain dealers at Eyota, Minn., have dissolved partnership.

Ellis & Williams, grain dealers at Blue Mound, Ill., have dissolved partnership.

Ramsay & Boyd, grain dealers at Bellefontaine, Ohio, have dissolved partnership.

Spellman & Jones, grain dealers at East Lynn, Ill., have dissolved partnership.

Harpster Bros., of Severance, Kansas, are to build an elevator at Everest, Kansas.

W. L. Davidson & Co. are putting up a 40,000 bushel house at Jamestown, Dakota.

Dan Seymour has returned to the management of the Danville Elevator, in this city.

Messrs. Ashton & Williamson are building a grain elevator at Ellinwood, Kansas.

Hunt & Kesinger succeed H. M. Hunt & Co., grain dealers at Alsey and Winchester, Ill.

Messrs. Faul & Bucklhoz are building an elevator addition to their mill at Portland, Ind.

Mr. L. Schnell has completed the improvements on his steam elevator at St. Charles, Minn.

Messrs. Cass & Cheney are erecting a 100,000 bushel elevator at Dalrymple Station, Dakota.

Burns & Marsh succeed Chas M. Marsh in the grain commission business at Buffalo, N. Y.

Simpson & Son succeed Simpson, Carroll & Co., in the grain commission business, New York City.

Messrs. J. C. Rogers & Co., grain dealers at Spring Hill, Kansas, have closed out their business.

Thos. Smith & Co., grain dealers at Polk, Ohio, have dissolved partnership. John P. Smith continues.

John W. Hunter, of Morse, Johnson Co., Kan., expects to erect a combined mill and elevator at that place this fall.

A 25,000 bushel elevator is being built for J. T. Ford & Co., at Lapelle, Ind., by Nordyke & Marmon Co., of Indianapolis, Ind.

The Webster & Comstock Mfg. Co., Chicago, Ill., have orders for over five carloads of their buckets, bolts and scoops, for future delivery.

A new 60,000 bushel elevator is under process of construction at Evansville, Minn. Pillsbury & Hulbert have an elevator at the same place.

Chas. F. Sims, of Alexandria, Minn., one of the incorporators of the Pillsbury & Hulbert Elevator Co., will act as traveling agent for the company.

Mr. C. W. Seefield is building a new engine-house to his elevator at St. Charles, Minn., and erecting a brick chimney in place of the former iron stock.

The Webster & Comstock Mfg. Co., of this city, have put their Patent Coker Power Shovel into four large elevators in Kansas City in the past few weeks.

The Wabasha Elevator Co., of Wabasha, Minn., and E J. Hodgson, of Waverly, Minn., have both put in engines made by the Page Mfg. Co., of Painesville, Ohio.

Louisville, Ky., is to have a large elevator of 500,000 bushels capacity. The Webster & Comstock Mfg. Co. of Chicago, Ill., have the contract for the buckets.

The wheat crop in Alexander county, this state, is immense. The milling firm of Halliday Bros. at Cairo, are buying 25,000 and 30,000 bushels per day at one dollar a bushel.

The new Big 4 Elevator at Cincinnati, Ohio, has contracted with Webster & Comstock M'f'g. Co., of this city, for the Magee Patent Bucket made by this firm, for their elevator.

The safe of the Watertown Elevator Co., of Watertown, Wis., was opened by burglars on the night of July 19, and relieved of $300 in cash, desides several checks and other valuable papers.

The Atlanta Elevator Co. of Atlanta, Ga., have added to their works a two-run corn mill, using two of Munson's Under Runner Mills, 42-inch diameter, made by Munson Bros., Utica, N. Y.

Capt. D. P. Slattery, formerly secretary of the St. Louis Elevator Company, St. Louis, Mo., is, we understand, about to take the management of certain important interests about to be consolidated.

W. W. Boyington, architect, of Cincinnati, is engaged in making plans for a new grain depot at Cincinnati to cost $500,000; also upon plans for the new Chicago Board of Trade building, which will cost $1,000,000,

The elevators at Alexandria, Minn., have been closed to await the arrival of the new crop. The receipts of wheat at that place for the past year were about 310,000 bushels, of which Pillsbury & Hulbert handled 250,000 bushels, Fuller & Campbell 40,000 bushels, and W. Hutchinson 20,000 bushels.

Churchill, Bennett & Co., of Toledo, Ohio, are putting up a 200,000-bushel elevator. Chase Elevator Co., of Chicago, Ill., supplied the plans and are superintending the construction of the building. Work is being rapidly pushed forward and the elevator will be ready for business in about thirty days.

A Chase elevator of 40,000-bushel capacity is being built at Alleghany City, Pa. The house will have two run of stone attached for grinding corn meal and chopped feed. This attachment is easily put into elevators on this plan, the large working floor giving ample room for the extra machinery.

The *Leader* of Larimore, Dakota, says: "Pillsbury & Hurlbert are beginning their mammoth elevator south of the railroad track, and received for it fifteen carloads of lumber in one day last week. This elevator will hold between 100,000 and 150,000 bushels, and is to be under the management of Wm. Clone, for three years the capable and popular manager of the same firm's elevator at Grand Forks.

The Marshall Sugar Refining Co., of Marshalltown, Iowa, are building a 75,000-bushel elevator on the Chase plan, for storing for their sugar works. All the machinery, conveyors, buckets, belting, scales, etc., are being supplied in Chicago. The building, when completed, will be one of the most convenient in the West. No expense has been spared to make it a thoroughly substantial and complete elevator.

Gen. Freight Agent Sarghant, of the Missouri Pacific railroad, made a trip from Atchison to Omaha, and says that grain elevators are being constructed at almost every station along the line of that road and thinks that by the time the corn crop begins to move there will be an elevator at every station. Some of these elevators are very large and finely built, and all of them are owned by enterprising grain dealers who expect to do a thriving business.

The sale of the Barnes & Magill elevators on the Northern Pacific railroad to Minneapolis millers and capitalists, which was once before partially arranged, and to which we referred last week, has been consummated. In the negotiations before, the interest of G. S. Barnes was bargainad for, but this time Mr. Magill disposes of his interest, and the first named gentleman will act as superintendent under the new management. By the new deal David Dows, of New York, who was understood to have backed Barnes & Magil, secures a direct interest in this system of elevators, which includes about fifty-five elevators and warehouses in Minnesota and Dakota, with a total capacity of 1,665,000 bushels.—*Northwestern Miller*.

A dispatch from Moorhead, Minn., to a Minneapolis paper says: "G. S. Barnes says of the recent purchase of the Northwestern system of elevators that he had purchased Mr. Magill's interest in behalf of a syndicate which is being formed in St. Paul. He said that as yet no names are to be made public, but it is the intention of the syndicate to place elevators at all points along the Northern Pacific railroad and its branches, which shall be of advantage to the farmers. New elevators will be erected at Hawley and Davenport in time for this season's crops. When asked what the syndicate intended to do in Moorhead, Mr. Barnes said that heretofore Mr. Finkle, proprietor of the A elevator in this city, had sustained very friendly relations with the former company, and probably this relation will continue, and both Mr. Finkle and the syndicate will find ample accommodation under the present arrangement. In case Pillsbury & Hurlburt company should step in and propose to erect another elevator in Moorhead, the new syndicate would erect another one.

The Kasson, Minn., *Republican* says: "The L. C. Porter Milling Company, of Winona, have commenced the erection of a very convenient warehouse, 24 by 60 feet, for the purpose of handling salt, coal, cement, etc. The structure is up and nearly enclosed. It is located on the railroad grounds just south of Town Hall, and in close proximity to the side-track. This firm has come into possession of the late Porter Bro.'s warehouse on Keyes street, near the side-track, and is remodeling it into a first-class elevator. They have received for that purpose a $2,400 engine, and are placing it in position for work."

Messrs Linn, Cooper & Brinson, of Humboldt, Neb., have built in connection with their large new mill at that place an elevator, which is said to be unsurpassed in size and equipment by any outside the great river cities. It is 36 x 68 feet, five stories high, and has a storage capacity for 40,000 bushels. The basement, fourteen feet high, contains a No. 2 Victor Corn Sheller, with a capacity of shelling 1,000 bushels of ear corn per hour. After shelling, the corn and cobs pass into one of Caldwell's patent wrought iron elevator boots which is fire proof and are conveyed by a 14-inch belt bearing 13-inch cups to the top floor, where they are separated and spouted to store bins, or to a Fairbanks 700-bushel scale and weighed for shipment. Wheat can also be received from cars on track, wagons, and by the dump and carried to the top where it is thoroughly cleaned before storing; it can also be spouted directly into the mill as required. All wheat going to the mill passes over a second cleaner and is scoured by smut mills, etc.

The *Evening Bulletin* of Philadelphia, in a recent issue says: "Extensive improvements have been under way for a year past at Girard Point, on the property of the Storage Company. An elevator to replace the one destroyed by fire in April, 1881, is in course of erection, and also an additional one to give increased facilities for the reception, storage and delivery of grain. The larger one, 'B,' which will be ready for use within ten days, has a delivering capacity of 250,000 bushels every ten hours, a storage capacity of 1,200,000 bushels, and facilities for unloading 250 cars in ten hours. It stands upon Pier 4, and vessels can be loaded from the dock on either side and from the end of the pier. The smaller elevator, 'A,' has a storage capacity of 800,000 bushels, and a delivery of 150,000 bushels every ten hours, and can unload 150 cars of 500 bushels in that time. In addition to the erection of these elevators, a good deal of dredging, filling in and track laying has been done. The four docks have been dredged to a depth of 22 feet. It is intended eventually to lengthen all the docks to 2,000 feet, or double the length of the present large one and four times the length of Nos. 1, 3 and 4. The company have also in contemplation the erection of a fire protecting and water supply apparatus, furnished with two Knowles' pumps, and capable af discharging 1,500 gallons each of water per minute through a system of pipes traversing all parts of the company's tract."

A. J. Sawyer, a prominent grain dealer of Duluth, Minn., controls a very large elevator and warehouse capacity on the lines of the Northern Pacific railroad. According to the *Journal of Commerce* he has on the main line a capacity of 30,000 bushels at Staples' Mills; 15,000 bushels at Motley; 15,000 bushels at Wadena; 10,000 bushels at New York Mills; 15,000 bushels at Perham; 15,000 bushels at Detroit; 25,000 bushels at Audubon; 25,000 bushels at Lake Park; 25,000 bushels at Hawley; 25,000 bushels at Oriska; 75,000 bushels at Sanborn; 10,000 bushels at Blanchard. On the Brainerd branch he has 30,000 bushels capacity at Rice's; 40,000 bushels at Little Falls; and 10,000 bushels at Fort Ripley. On the Fergus branch he has 15,000 bushels capacity at Deer Creek; 35,000 bushels at Heming; 40,000 bushels at Clitherall; 35,000 bushels at Battle Lake; 10,000 bushels at Underwood. On the Little Falls & Dakota has two houses between Little Falls and Sauk Center with a total capacity of 30,000 bushels; Sauk Center to Morris (four 50,000 elevators) 200,000, and another of 25,000. This gives Mr. Sawyer a grand total storage capacity of 735,000 bushels. Several new houses have been built and others at Breckenridge, Waupeton and stations west of Waupeton are contemplated, while old ones have been remodeled in anticipation of a large business the coming season.

SOMETHING ABOUT CORN.

The Chicago *Times* discoursing upon corn prospects says: "The crop of 1879 in Illinois was over 309,000,000 bushels, and that of last year was 176,000,000 bushels, and an acreage in which one of these years entered would vary considerably from one in which the other entered. The average of the corn crop is 7,163,684, which is a falling off of nearly two million acres from the area devoted to corn in 1881. At the same time the condition of the plant in all parts of the State is inferior to what it was a year ago at this time. Allowing for an inferior yield the crop for this present year may be estimated at the very low figures of 125,000,000 bushels, against 176,000,000 bushels a year ago, 262,000,000 bushels two years ago, and 309,000,000 bushels three years ago. Ohio produced last year very nearly 80,000,000 bushels of corn, but the prospect for this year is poor, and the crop may be estimated at 65,000,000 bushels. In Indiana the crop will be nearly equal to that of last year, and may be 75,000,000 bushels. Iowa produced almost the same amount of corn last year that this State did, and the prospects this year are very similar; it may be expected to produce 125,000,000 bushels. In Missouri the corn prospects are good, and the State may be expected to go a little ahead of the figures for last year, when it produced over 93,000,000 bushels, through the yield was only 16.5 bushels per acre, less than half the yield of 1875. The State should be good for 110,000,000 bushels at a modest estimate. Kansas authorities name 175,000,000 bushels as a reasonable expectation. Nebraska produced nearly 59,000,000 bushels of corn last year, and as there has probably been an inerease of acreage, it will be safe enough to put the State down for 65,000,000 bushels. According to these figures the seven States named will produced 740,000,000 bushels of corn this year, against 737,759,000 bushels last year."

HINTS ON BUILDING ELEVATORS.

We do not know the source of the following: "In order to build an elevator or grain house of a required capacity, for the least money, and to be so arranged that you can handle the largest amount of grain in the shortest time and to the best advantage, it is important that you first decide upon engaging the services of a good, conscientious and competent millwright, and have him come and see you and first make him fully acquainted with your wants and desires. Having posted him thus far, show him the place where you wish to locate the building and give him, if possible, the depth it is practicable to go into the ground without water interfering, and if water, the chances of drainage. Having obtained this information, he is enabled to determined the ground elevation as compared with the railroad track.

Having obtained all of the above facts, he is fully prepared to express your wants and desires in the shape of a drawing showing ground plans, side and end elevations, together with the location of the machinery, approaches, dumps, cribs and drive-ways as plainly as if the building and cribs stood before you completed and ready for use. At this point if any changes or improvements suggest themselves they can be made in a few minutes, and comparatively at no expense. Then when the building and attachments are completed, you have no regrets that so and so was done or not done. Then, too, by proceeding in this way, your millwright is enabled to tell you, without any expense, other than that of the drawings and specifications, to the dollar, just what your improvements will cost you. You then, knowing the cost, are enabled to determine if it is wise to go on to completion or stop without further expense. Making improvements in this way is much more pleasant, while the work is progressing, knowing just what money you will require to complete the work, and certainly much more satisfactory to you and the mechanic on the day of settlement. Having the drawings and specifications before him, your millwright knows just what he has to do and what will be required of him, and you know whether or not he is performing his work according to those specifications. The work being completed, a settlement is made according to agreement and bills are receipted, checks are given, and everything is pleasant and satisfactory—the millwright having done what was required of him, and you getting what was agreed upon, all having been done according to the drawings and specifications.

THE CHICAGO ELEVATORS.

The following table gives the names, proprietorship and capacity of the largest Chicago elevators together with the sources from which they receive grain:

Names of Elevators.	Proprietors.	Grain Received From—	Capacity—Bushels.
Central, A	J. & E. Buckingham	Illinois Central Railroad	1,000,000
Central, B	J. & E. Buckingham	Illinois Central Railroad	1,500,000
C., B. and Q., A	Armour, Dole & Co	Chicago, Burlington and Quincy Railroad	1,250,000
C., B. and Q., B	Armour, Dole & Co	Chicago, Burlington and Quincy Railroad	850,000
C., B. and Q., C	Armour, Dole & Co	Chicago, Burlington and Quincy Railroad	1,750,000
C., B. and Q., D	Armour, Dole & Co	Chicago, Burlington and Quincv Railroad	2,000,000
Rock Island, B	Flint, Odell & Co	Chicago, Rock Island and Pacific Railroad and Canal	1,250,000
Seavern's A	Flint, Odell & Co	Chicago, Rock Island and Pacific Railroad	750,000
Fulton	Munger, Wheeler & Co	Chicago, Milwaukee and St. Paul Railroad and Canal	300,000
St. Paul	Munger, Wheeler & Co	Chicago, Milwaukee and St. Paul Railroad	1,000,000
Northwestern	Munger, Wheeler & Co	Chicago and Northwestern Railroad and Canal	600,000
City	Munger, Wheeler & Co	Chicago and Northwestern Railroad (Galena Division) and Canal	1,000,000
Iowa	Munger, Wheeler & Co	Chicago and Northwestern Railroad (Galena Division)	1,500,000
Air Line	Munger, Wheeler & Co	Chicago and Northwestern Railroad (Galena Division)	750,000
Galena	Munger, Wheeler & Co	Chicago and Northwestern Railroad (Galena Division)	750,000
Union	Munger, Wheeler & Co	Wabash, St. Louis and Pacific Railroad and Canal	700,000
National	Vincent & Co	Chicago, Alton and St. Louis Railroad and Canal	1,000,000
St. Louis	Vincent & Co	Chicago, Alton and St. Louis Railroad and Canal	1,000,000
Illinois River	Wm. Dickinson & Co	Canal and Teams	200,000
Neely's	Ill. Trust and Savings Bank	Canal and Teams	600,000
Danville	Joseph F. Armour	Chicago and Eastern Illinois Railroad and Canal	450,000
Pacific	Chi. and Pac. Elevator Co	Pacific Division, Chicago, Milwaukee and St. Paul Railroad and Canal	1,000,000
Total capacity			21,200,000

THE SUEZ CANAL.

There is just now an abundance of interest in canals the readers may find the following facts valuable, especially in view of the present Egyptian complication. The Suez canal is eighty-five miles long, and extends across the isthmus of the same name from Port Said to the city of Suez. It is intended throughout to be 327 feet wide at the top, 72 feet at the bottom and 26 feet deep. The project of cutting a canal across the isthmus of Suez was first seriously considered by Bonaparte. Under his direction it was surveyed by a body of engineers, who arrived at the conclusion that the level of the Mediterranean is thirty feet below that of the Red Sea. The project was then dropped by Napoleon, but was agitated at intervals especially by the French. Nothing definite, however, was arrived at until 1847, when France, England and Austria sent out a commission to measure accurately the level of the two seas. These commissioners reported that instead of a difference of thirty feet, the seas have exactly the same mean level. Another examination leading to similar results was made in 1853. In 1854 M. De Lesseps obtained from Egypt a concession granting him the exclusive privilege of constructing a canal from Tyneh to Suez. This canal was to have a minimum width at the surface of 262 feet and at the bottom of 144 feet, with a depth of twenty-two and one-half feet, and at each end there was to be a sluice lock formed 320 feet long by seventy feet wide, through which, by taking advantage of the tide, it was hoped that an additional depth of three or four feet might be attained. The English looked with aversion upon M. De Lesseps's scheme, but in 1855 the question was again taken up in an international spirit, a new commission was appointed, which reported that the scheme, somewhat modified, was practicable. The result of the report was the formation of a joint stock company, with a subscribed capital of $40,000,000, and in December, 1864, the Mediterranean and Red seas were connected by an experimental canal. In the following April the work was inspected by another scientific commission, who reported that "the construction of a ship canal across the isthmus is only a question of time and money." On November 16, 1869, the Suez canal was formally opened with a procession of English and foreign vessels, in the presence of a number of crowned heads. Since then it has continued in successful operation, with a few slight interruptions. The total cost of the construction of the canal was about $57,000,000. Its great advantage is, of course, the shortening of the distance between Europe and India. The toll charges are ten francs per ton and ten ten francs per head for passengers. The receipts of 1873 amounted in round numbers to 23,000,000 francs; in 1881 to 51,000,000.

PHILADELPHIA AS A GRAIN CENTER.

Philadelphia ought to be a large grain centre. At one time, and that not so very long ago, we ranked high in this respect, but for some reasons the growth which we naturally looked for has not come, and such being the case, it is well to inquire as to its cause. There is no use in uttering mere complaints and sitting down with folded hands to wish for good times. Common sense suggests the propriety of seeking the source of the evil and then doing our best to eradicate it. Our position as an approximate sea port is a good one, and we are fortunately situated for inland trade. We have two large railroad lines centering here that bring produce direct from the West, and public and private elevators either complete or nearly finished capable of storing over 4,000,000 bushels of grain, besides facilities for handling not enjoyed by every large city.

Why then don't the grain come? The Pennsylvania Railroad Company is given as one obstacle in answer to this question. It was charged against this corporation that proper discrimination in favor of Philadelphia was not allowed, and our relative position to other seaboard cities did not accrue to our advantage. Now, if so, this will soon be obviate by the decisions of the Advisory Commissions, before whom the subject of "differential rates" was so ably discussed by a committee of our Commercial Exchange. Moreover it is difficult to see why a corporation fostered in this city and owned in great part here, should deliberately damage the interests of its constituents. But with this condition of affairs improved, if true, so far as the railroads are concerned, will the grain then come as it should?

Our merchants themselves can best make reply. For to a great degree the matter rests with them. Formerly there was scarcely a grain commission house in this city that did not have its agent scouring through the West seeking consignments, and as a result trade was lively and but few complaints heard. We fear that this way of working is greatly changed and dependence is too much placed on chance and former reputation. It is needless to say that with the many keen, pushing travelers representing enterprising firms in other cities, drawing in consignments, business men must expect sharp competition and take part in it, or settle down to a fourth rate position. Surely we have snap enough for all requirements, but of late we have not shown it as we ought, and now, since our elevators are getting into condition and terminal facilities being settled, we can take a new start and show that we are as enterprising as the best.—*Philadelphia Trade Journal.*

A dispatch from Clebourne, Tex., says a shipment of 50,000 bushels of wheat was made from that point last week direct to Florence, Italy, via Galveston, and another lot of the same amount was sent o Liverpool.

To Russia's other trouble is now to be added the livelihood of a failure of crops in a large part of its territory and of poor harvests in most of the remainder. The districts in which there is a prospect of good crops are represented to be mere oases in a desert. The probable effect of this ill-fortune is the cause of much apprehension. It is likely to lend increased force to the many disturbing elements now at work, and to augment the discontent and unruliness of the peasantry.

Messrs. N. & J. Schwacher, distillers and wholesale liquor dealers of Peoria, Ill., will immediately commence the erection of an elevator in Lower Peoria with a capacity 300,000 bushels. This is the second large elevator in Peoria this season.

The American Elevator

—AND—

GRAIN TRADE.

Published on the Fifteenth of each month

—BY—

MITCHELL BROS. COMPANY,

(INCORPORATED.)

OFFICE—HOWLAND BLOCK, 184 & 186 DEARBORN ST.,
CHICAGO, ILL.

Subscription Price, - - - $1.00 per Year.
English and Foreign Subscriptions, 1 50 " "

English and Foreign subscriptions may be sent to W. H. Smith & Son, 186 Strand, London, W. C., Eng.

A. J. MITCHELL, Business Manager,
HARLEY B. MITCHELL, Editor.

Vol. I. CHICAGO, ILL., AUGUST 15, 1882. No. 2.

ADVERTISING.

This paper has a large circulation among the elevator men and grain dealers of the country, and is the best medium in the United States for reaching this trade. Advertising rates made known upon application.

CORRESPONDENCE.

We solicit corresecondence upon all topics of interest connected with the handling of grain or cognate subjects.

SUBSCRIPTIONS.

We cannot but confess to a very agreeable surprise in the matter of subscriptions to this paper. We know perfectly well that business men are justly suspicious of new journalistic enterprises. It is a doleful fact that mushroom papers of one class and another have been and still are, far too plentiful. We naturally expected, therefore, that it would take a few months at least, to recommend ourselves to the confidence of the public. This we were fully prepared to do; and possibly our evident purpose was so manifest to our readers that they anticipated us. At all events, subscriptions from all sources and directions have poured in upon us in an unexpected but very gratifying manner. We do not wish to make any boasts, but it is an honest fact that the first month of this paper's existence finds it with a subscription list which many papers having the prestige of years would not be ashamed of.

THE RAILWAY VIEW OF FREE CANALS.

The proposed State constitutional amendment in New York, to make the Erie canal free to the public, referred to elsewhere in this issue, as viewed from the stand-point of the railways and presented by their organs, appears as follows: It is in no way a political question as an endorsement of the amendment will probably be put in both of the party platforms. These amendments are intended to benefit a few individuals at a cost annually of a tax of more than a million dollars. An increase of business for the canal to any extent by this measure is more than doubtful. Railroad competition cannot be overcome by a difference of only one cent a bushel on freight from Buffalo to New York. A new canal ring will be the result clamoring for increased appropriations to add to the burdens of the tax-payer. A falling off of freight on the canal during the past two years is admitted; in 1881 as compared with 1880 it was less by more than one and one-quarter million tons, and in May and June of this year compared with the same period of 1881, the falling off amounted to four million bushels. By those who favor the free canal these losses are charged to the account of deficient crops and railroad conflicts; but the real reason, as claimed by the railroads are their increased facilities for handling freight and ability to lessen costs, which will and must increase, so that they could if they chose discount an abolition of canal tolls at once. It is anticipated that farmers generally and the residents of interior towns will oppose the amendments, but their apathy and the vigor of those who favor the amendments it is conceded imperil greatly the success of the opposition.

THAT PATENT DUMP.

A friend who is well acquainted with the trade tells us to advise all elevator men to beware of the patent right dump shark, as he is abroad and collecting from ten to fifty dollars wherever he can, without process of law. We understand that the only dump of any account that was ever patented is now seventeen years old, and the patentee himself died in the small-pox hospital in this city last winter. We fully believe that every patent and every patentee should be protected; but we do not want our readers to pay unnecessary or unjust royalties for things that are common property.

THE NATIONAL IMPORTANCE OF THE HENNEPIN CANAL.

The seal of Congressional authority has at length been affixed to the proposition that the water-ways which aid in the trans-continental transportation of the products of the West are of National importance, and that their increase and improvement have a just claim on the public purse. The appropriation to the Hennepin Canal Survey, though small and united with others that were not deserving, gives special emphasis to the following resolution adopted by the New York Produce Exchange, December, 1881: "That in the opinion of The New York Produce Exchange the United States Government should undertake to build the Hennepin Canal and to maintain the same free for all time to come." This Board, as is well-known, is inimical to the general policy of our Government as to internal improvements, and passed this resolution only after a reference to the Committee on Trade in view of this fact, and after due consideration. The spirit of this resolution has characterized the action of the Boards of Trade of New York, Buffalo, Duluth, Minn., Davenport, Iowa, as well as that of Chicago. The whole Northwest may be said to have given an almost unanimous assent to the proposition. So rapid and immense has been the extension of railway transportation; so valuable in opening up the best resources of our country, and so tempting to the investment of capital have railroads become that the canal, whose profits have sunk nearly to zero in the competition, has become in the view of many, obsolete, a thing of the past. No where is this more apparent than in New York State, as is shown in the difficulty there in arousing the masses, especially the farmers to a true appreciation of the importance of the Erie Canal even if by making it free it should be a public expense instead of a source of revenue. The Government of the Dominion fully realizes the importance of these water routes, and has spent more than forty million dollars upon her canals, and it is hardly to be doubted that she will yet open them free to all vessels in the hope that by thus reducing the cost of transportation she may secure the foreign trade of the West. Last season there was shipped over the Welland Canal and the St. Lawrence one-third as much grain as by all the railroads combined, leading out of Chicago; and this route is increasing in popularity, and is the real competitor of both the railway and the canal in our eastern traffic. The water-ways are the regulators of freight as against the control of railroads which, however numerous from the cohesive power of capital fall readily under the control of a few individuals. By these routes of the 116,369,222 bushels of grain shipped from Chicago last season, 89,564,278 bushels were carried to the seaboard. The Illinois and Michigan Canal, the only western water transportation line connected with Chicago, delivered at the same time five and a quarter million bushels of grain at much lower rates than those of the railroads for an equal distance. It requires no stretch of the imagination to see the immense and far reaching advantages to the whole country of a grand free water-way with canals large enough for ships, bearing from the Mississippi to the ocean and to foreign parts direct, the vast commerce of the Northwest.

ELEVATOR BUILDING.

The present season has been one of unexampled activity in elevator building and repairing. From all quarters we hear, not only of the erection of new houses, but the refitting of old ones to accommodate the demands to be made upon them. Were it not for the fact that a very general anticipation of a poor corn crop has prevailed, there would have been a still larger "boom" in elevator building and refitting. Of course, the principal seat of activity in this direction is the new territory; but the older States show a largely increased elevator capacity over last year.

OUR ADVERTISERS.

We wish to direct the attention of the readers of this paper to the advertising cards presented in this issue. We doubt if any new paper was ever so honored at the outset by the patronage of so many first-class and eminently respectable firms as are represented in our columns. So far as we know (and we have a personal knowledge of nearly every firm who advertises with us) every one of our advertisers stand in the front rank in their respective lines. It will be our aim to exclude all "snide" and untrustworthy concerns from our columns, as we intend that this journal shall be the representative of only what is legitimate and connected with the grain interests of our country.

THE NEW RULE AT CHICAGO.

The new rule of the Chicago Board of Trade relative to contracts for future delivery intended to prevent "corners" in grain, though only adopted a few weeks since, is unfavorably criticised by *Bradstreet's*, and its complete failure predicted. The rule is as follows: "On contracts for grain for future delivery, the tender of a higher grade than the one contracted for, of the same kind of grain shall be deemed sufficient, and all contracts for the future delivery of wheat made on, and after June 1, 1882, unless otherwise specially agreed by the contracting parties, shall be understood as for No. 2 wheat, and a tender of No. 2 or a higher grade of spring wheat, or a tender of No. 2 red winter or a higher grade of winter wheat, shall be deemed a sufficient tender in fulfillment of such contracts." No. 2 spring wheat has been practically the only speculative grade in Chicago, because there was more of it than of any other grade, and it was the only one existing in such quantity in the market that holders of the bear-faction would believe it to be too great for any clique to corner and be induced to sell short. The object of the rule was to abolish the speculative trade in specific contracts for this grade. Under the rule the contracts would be for simple "No. 2 wheat," specifying that nothing of less value should be deliverable. Buyers for future delivery for any purpose could have no objection to the chance of receiving a better grade than that contracted for, and the anticipated result of the rule was that when the corner in No. 2 spring for July was settled speculative trading in specific contracts for it would cease.

The practical effect of this, however, *Bradstreet's* thinks will be to consolidate all the grades deliverable into one grade for speculative purposes. The differences in the value of these different grades will affect the speculation similarly to the way different distances from Chicago, affected the cost of transportation in the former speculations in No. 2, St. Louis and Toledo, exclusively winter wheat markets are the next largest wheat receiving points in the West after Chicago. The interests of their commission merchants and also of their railroads are largely in competition with the latter. If speculative prices in Chicago approach those of No. 2 red winter, these places will enter into the speculation both for the sake of retaining their grain trade and because they would feel the speculative impulse extended to their own special commodity. New York also, where hitherto there has not been sufficient grain in store to make a doubtful contest and where therefore grain speculations have not reached the proportions of those of Chicago, would be led to appropriate some of her large speculative capital to bids in the grain markets of the West. Thus viewed the effect of the new rule will be to consolidate the speculative capital of these various cities in the direction of higher prices whenever an attempt is made toward a grain Corner in the Chicago market.

It was recently our pleasure to be shown over the extensive Columbian Iron Works, Chas. W. Parker, proprietor, at 325-331 Desplaines street, this city. Mr. G. E. Bushick, the superintendent, and Mr. H. A. Hawkins, well known from his identification with the grain handling interests of the country showed us about, and exhibited some of the work which this establishment is doing. One of their specialties is elevator machinery, which the reader will discover from the illustration given elsewhere in this issue, as well as from their regular advertisement in our columns.

A practice prevails in the customs exactions at Kingston, Ont., which shippers claim is unjust, being mainly on vessels of large tonnage, of which American vessels are the most numerous. A shortage of 20 bushels and under is not charged duty, but if it exceeds this amount by only one bushel the authorities demand the dues on the whole bill of lading. The average shortage as estimated is one bushel in the thousand; vessels, therefore, carrying over 20,000 bushels must pay for all her shortage, while the smaller vessels, with the same ratio of deficiency, pays nothing. This practice does not exist at Montreal, or any American ports where custom dues are collected only for the grain delivered.

Messrs. Thornburgh & Glessner of this city, are having a very heavy trade this season, and to supply it they have been compelled to run their shops over time. They recently shipped a bill of goods to Denmark. The specialties of this firm are well known to the milling and elevator interests of the country.

Messrs. Poole & Hunt of Baltimore, Md., have put us under obligations for several favors, among which we may note a fine photograph of Dow's stores in Brooklyn, nearly all the machinery for which, by the way, was constructed by Messrs. Poole & Hunt. These stores have a storage capacity for 2,500,000 bushels of grain, and would hold enough wheat to feed a city like Chicago for a whole year.

Editorial Mention.

The June wheat deal at St. Louis was settled August 12, at 1.18½ and five per cent.

The July corner in this city bids fair to give trouble, before an adjudication is reached.

The trouble between Jack Sturges and Francis C. Bennett, regarding the Keokuk elevator matter, is again revived in court.

The Chicago Underwriters are turning their attention to the elevators of this city which they claim are largely without the necessary safeguards against fire.

The Buffalo crowd are getting badly bitten, as they richly deserve. One day, recently, of 400,000 bushels of grain shipped from Chicago, three-fourths went through Canada.

We advise subscribers to preserve their copies of the American Elevator and Grain Trade, and in a short time they will have an invaluable library for reference in regard to the grain trade and kindred subjects.

The daily consumption of corn in this country is not far from 3,000,000 bushels. The entire amount " in sight" is only about 6,000,000 bushels; but no one need be alarmed. " Grain in sight" is a beautifully deceptive term.

The new Chamber of Commerce at Minneapolis will erect their building at the corner of Fourth avenue, South, and Third streets, in that city. This property, valued at $30,000, is donated to the Chamber by the property owners of the locality.

Messrs. Skinner & Wood, of Erie, Pa., a large advertisement of whose engine appears in this issue, are very busy just now on their regular line of work. They expect to build more engines this year than any previous year in the history of the firm.

In our next issue we will introduce a number of new features in this journal which cannot help enhancing its usefulness to the reader. We shall also make certain changes which will enable us to accommodate a much larger amount of matter than we give in this number.

We want all who receive a copy of this paper to look it over carefully and ask themselves if it is not worth a good deal more than the price we ask. We have no wish to aim too high, but we intend to make this paper invaluable to every one interested in the handling of grain.

Mr. A. J. Sawyer, of Duluth, Minn., one of the largest grain dealers in the Northwest, in subscribing to the American Elevator and Grain Trade, writes that he thinks well of the enterprise, and expresses the hope that it will prove a pleasant and profitable one to the owners, which last we are glad to say it *is* doing.

We are neither too old or too wise to learn; and we want the men whose interests this journal represents to write for this paper, to send us items of news and to make suggestions. There are few of our readers who cannot add to the interest of our columns in some way, and we wish to hear from them, one and all.

A meeting of grain men representing the produce exchanges of New York, Boston, Cincinnati, Toledo, Indianapolis, Detroit and Chicago, was held at Toledo recently to establish an international grade of No. 2 red wheat. St. Louis declined to participate. For universal trade No. 2 red wheat is established as red winter wheat—sound, plump grains, perfectly clean, and to contain not more than 10 per cent. of white wheat.

The Blake-Beebe Co., of Racine, Wis., manufacturers of the "Champion" fanning mills, have placed us under obligations for a copy of their neat catalogue, describing this well-known mill with its latest improvements, including the motion governor. We notice a host of testimonials to the "Champion" from the owners of both large and small elevators and warehouses. Interested parties can obtain a copy on making application to the Blake-Beebe Co.

Mr. C. B. Rowley, Manager of the Girard Point Storage Co., Philadelphia, in subscribing for this journal, says: " Your paper fills a long existing need and will certainly receive, as it richly deserves, the liberal support of the large and influential elevator interests of America." We only ask our friends to assist us in making this paper a worthy representative of those interests. They certainly deserve a worthy representative.

In a late number of the *Times and Expositor*, of Adrian, Mich., we find an able article criticising the action of the Fire Insurance Commissioner of Michigan in denouncing the mutual companies. The writer pays a high tribute to the Western Manufacturers' Mutual Insurance Co., of this city, in which he states emphatically, and truly, that the security it gives the policy holder is as good or better than that given by the stock companies.

The reader will hardly fail to notice the advertisement of Messrs. Kerfoot Bros., of Des Moines, Iowa, a new firm which starts out with all the auspices of success. The firm is composed of Mr. S. Henry Kerfoot, who for a number of years has been actively engaged in the business of general mill furnishing and elevator supplies with B. F. Gump, of this city, and his brother, Mr. W. A. Kerfoot. The new firm has on hand a large stock of goods with which they can fill orders for mill and elevator supplies on the shortest notice. Their place of business is at 804 and 806 Walnut street, Des Moines, where they will be pleased to meet grain men, millers and others with wants to fill. Or they will be pleased to correspond with all who are in need of anything in their line. Having made very favorable arrangements with manufacturers, they are convinced that their prices are at the bottom notch.

Tackle Blocks and Trucks.—We wish to call the attention of our readers to the card of the Penfield Block Company, of Lockport, N. Y., which appears in our columns for the first time. As it is quite generally known, they are the leading tackle block manufacturers of this country, their Anchor Brand Blocks being well known everywhere. They make a full line of all sizes and kinds of both wood and wrought iron. They are also becoming quite well known as manufacturers of all kinds of warehouse trucks, bag trucks, baggage barrows and four-wheel wagons of every description, in which business they engaged about a year and a half ago. Their trade on these goods is already substantial, and is steadily increasing, as their goods are said to be superior in workmanship and finish to any others offered. Their 1882 illustrated catalogue and price list is just out, and will be mailed free to any who apply for it. They solicit correspondence and sample orders.

We have received a number of inquiries similar to the following:

Exina, Iowa, July 26, 1882.

MITCHELL BROS. CO.,—*Dear Sirs:*—I see in your paper notices where several apparatus for moving cars have been patented. I wish to get a car mover. Could you tell me where to get one, and one that would be durable.

Yours Truly, JAMES WILLOX.

St. Johns, Mich., July 27, 1882

MITCHELL BROS. CO.,—*Gents:*—Have you any plan for conducting wheat from the hopper—scale in a warehouse into a car except the old plan of spouting it in? Have you any device that will save the shoveling of wheat to the ends of the cars?

Yours, J. HICKS.

Parties who have such devices will serve their own interests and those of their fellow men by advertising them in this paper.

PECK'S SUN makes light of the recent decision at LaCrosse. Geo. W. says: "In a case before Judge Hugh Cameron of Lacrosse, he decided that a note given by John Servis to cover margins on wheat, was not worth a nickel. Now if the supreme court sees it in the same light, and the United States supreme court backs up the decision, and the case is remanded back to a justice of the peace and the decision remains the same, or if the decision is reversed by the justice, and is appealed, and a writ of *habeas corpus* is issued, and the thing keeps on in the courts for a few hundred years, we shall know whether speculating in wheat margins is gambling or mumbletypeg. This thing should be settled, for if it is an innocent game we all want to play it, and if it is gambling, there are lots of church members in it who want to get out before it is everlastingly too late."

RESTORATION OF THE TERMINAL TAX AT CHICAGO.

The question of a terminal tax by eastern railroads, supposed to have been settled by the mutual agreement of these roads with shippers two years ago, is re-opened by the announcement that from Sept. 1, a charge of two dollars per car will be made on all grain loaded at elevators. Previous to the above mentioned agreement a charge had been made by the railroads of two dollars per car for switching to elevators; and by the latter of one dollar per car for trimming. These charges were abolished as has been said, and at the same time the western roads reduced their charges 50 per cent. for handling cars in and out of elevators. Shippers are greatly dissatisfied with the renewal of these charges, and claim that they are not just, and will injure Chicago's interest as a commercial center. Mr. Wheeler, of the firm of Munger, Wheeler & Co., says that these charges gave rise two years ago, to great dissatisfaction and discussions on the part of grain merchants. The abolition of these charges was by mutual agreement, and they ought not to be resumed until after consultation with the western roads and elevator proprietors. The only reason the railroads have for the action is that they have the power. Mr. Murry Nelson agrees substantially with Mr. Wheeler that the railroads have made a mistake. He does not think the shippers will unite to make any effective resistance as they never have done so. Their reliance must be on competition among railroads and water-transportation.

Varions railroad managers have been interviewed, and uniformly claim the necessity of the charge to cover the extra expense involved. In shipping, say 20,000 bushels of grain 20 cars are sent to an elevator and switched on the track of a western road at an expense of track-service, etc., amounting to not less than $40. The western railways have no such expense, and charge an equal sum for transportatian of half the distance. While the abatement of terminal charges two years since was by mutual agreement, there was no such basis for the original charge, and its resumption does not require it. The railroads, as they claim in their competition for freight have toadied to the shippers, and re-adjustments even on a reasonable basis will of course be opposed by chronic grumblers.

LAKE FREIGHTS ON GRAIN.

The uncertainty of freight rates on the lakes, for the past few weeks, is shown in the fact that at times when the rate on corn to Buffalo advances to two cents per bushel, there may be no increase on the rate for wheat to Kingston, Ont. The large steam transportation lines take no grain at a less rate than two cents per bushel, and thus steady the prices. But it occurs at times, as shown in the business last season, that a steady advance of freights up to, say, three cents per bushel, will attract a large fleet of vessels, and then, owing perhaps to light receipts by rail, shippers' demands decline, and seized with a sort of "buck-fever panic" each ship owner orders the receipt of goods at any price by his agent. The consequence is that freights drop rapidly to rates which will not pay expenses. This has been the case recently. Were the steam transports to pursue the same course the sailing vessels would be tied up to the docks and rot.

THE CROPS.

We have nothing to add to the very general opinions which prevail in regard to the crops. The corn crop, as is well known, is pretty sure to fall short, though it promises better now than it did at the time of our last issue. In regard to wheat, the situation is well known. An unprecedented crop is on our hands. In this connection we wish to quote a pointer from the *Baltimore Journal of Commerce*, an excellent authority in matters of this kind. It says:

> Two weeks ago we pointed out that with an estimated yield of 500,000,000 bushels, there would be an actual exportable surplus, after allowing for all home wants for bread, seed and reserves, of fully 200,000,000 bushels. But, as stated since, it is now believed that the crop will turn out considerably above 500,000,000 bushels; and of course whatever may be the quantity over these figures, it will simply be that much more to add to our surplus and that much more to weigh prices down. In 1880, the year when we harvested 498,000,000 bushels of wheat, the average yield for the entire country was a fraction over 13 bushels per acre, and, according to the Agricultural Department, the average value from first hands was 95 cents a bushel, making the yield of an acre produce $12,35. According to all reports the average yield this year is the highest ever known, and many are putting it at several bushels per acre above 1880, which, in view of the reports from all sections, does not seem to be too high. But preferring to be on the absolute safe side, we will base our calculations upon a supposed average yield of only one bushel per acre greater than 1880, or 14 bushels per acre. On this calculation, to produce for the farmer $12.35 per acre, the amount received on the average from the crop of 1880, it would only be necessary to receive 88 cents per bushel this year, against 95 cents in 1880. This estimate of an average increase of one bushel per acre, is, we think, very low; but, as previously said, it is made so for the sake of being on the safe side and under-estimating rather than over-estimating the crop. Thus, a farmer can this year afford to sell his wheat at 88 cents a bushel just as well as 95 cents a bushel in 1880; but is this being done at present? The price from first hands for the entire country is, of course, not yet obtainable, but it will be just as well to compare the current price at the seaboard today (August 9) with the same time 1880:
>
> | Wheat, No. 2 Red | Aug. 16, 1882. | Aug. 16, 1880. |
> |---|---|---|
> | Cash | $1 14⅛@1 14¾ | $1 09¾@1 07⅞ |
> | August | 1 14⅛@1 14⅝ | 1 09⅜@1 09⅝ |
> | September | 1 13¾@1 14 | 1 09¼@1 09¾ |
> | October | 1 14⅝@1 15 | 1 09⅜@1 09⅝ |
>
> Thus, while the farmer can afford to sell at 7 cents per bushel less than in 1880, the present price is just about 5 cts. per bushel higher than at the same time of that year.

Here are some facts which should be heeded.

The elevator at Delund, Ill., is being remodelled. The Caldwell Conveyor is being put in.

Mr. C. Hitz, of Girard, Kan., will soon build a new mill and turn the old mill into a grain reservoir.

The Portage Milling Co. (A. P. Campbell, Esq., manager) have completed their elevator at Portage la Prairie Man.

The wheat crop in Kansas this season is the largest ever gathered in that State. Very favorable advices also continue to be received from all Western points.

FOR SALE CHEAP.

One Patric's Rotary Oat Separator, and some 10-inch Duc Buckets. Address,

F. W. C., care AMERICAN ELEVATOR AND GRAIN TRADE, Chicago, Ill.

Security and Economy.

Western Manufacturers'

MUTUAL INSURANCE COMPANY

P. A. MONTGOMERY, Secretary.

Western Department Mutual Underwriters' Union.
P. A. MONTGOMERY, GEN. AGT.
Office, Nos. 113, 115 and 117 Monroe Street, Chicago.

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Western Manufacturers' Mutual Insurance Co., Chicago.
Jesse Spalding, President; P. A. Montgomery, Sec'y.
Illinois Mutual Insurance Company, Alton, Ill.
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Manufacturers' & Merchants' Mut. Ins. Co., Rockford, Ill.
H. W. Price, President; Geo. S. Roper, Secretary.
Corn City Mutual Fire Insurance Co., Toledo, Ohio.
D. Robison, Jr., President; G. E. Detwiler, Secretary.
Van Wert County Mutual Fire Ins. Co., Van Wert, O.
J. M. C. Marble, President; M. L. Purmort, Secretary.
Merchants' & Manufacturers' Mut. Ins. Co., Mansfield, O.
L. J. Tracy, President; M. E. Douglas, Secretary.
Delaware Mutual Fire Insurance Co., Delaware, Ohio.
R. W. Reynolds, President; Chas. O. Little, Secretary.
Capital City Mutual Fire Insurance Co., Columbus, O.
W. E. Guerin, President, F. Schwan, Secretary.

ASSETS OVER $3,000,000.

These Companies co-operate throughout the Northwest, emyloying the same inspectors and dividing expenses. Are purely mutual; all assets are owned and controlled by the policy holders. All risks carefully examined by salaried inspectors, and rated on fixed schedules, thereby avoiding unjust apportionments. Experience has proved properly conducted Mutual Companies to be the safest and most economical.

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M. G. & N. Sage, Harvest Queen Mills, Elkhart, Ind.
F. Goodnow & Co., Salina Mills, Salina, Kan.
Page, Norton & Co., Inter Ocean Mills, Topeka, Kan.
F. W. Stock, City Mills, Hillsdale, Mich.
Dewey & Stewart, Owosso City Mills, Owosso, Mich.
Hicks Brown & Co., Brown's Mills, Mansfield, Ohio.
Polar Star Mill Co., Polar Star Mills, Faribault, Minn.
J. S. Pillsbury, Anchor Mills, Minneapolis, Minn.
Red Wing Mill Co., Red Wing Mills, Red Wing, Minn.
E. O. Stannard & Co., Eagle Mills, St. Louis, Mo.
Nunnemacher Co., Star Mills, Milwaukee, Wis.
Alex. Syme, City Mills, Menasha, Wis.
Jno. Schuette, Oriental Mills, Manitowoc, Wis.

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GOOD RISKS.

GRAIN COMMISSION CARDS.

A. B. TAYLOR,
Commission Grain Merchant
—AND—
Wholesale Dealer in Flour and Bran,
MINNEAPOLIS, MINN.

Careful attention given to consignments, and orders for Flour or Bran filled at lowest Prices.

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Careful Attention given to Filling Option Orders.

References: Merchants Nat. Bank, Philadelphia Nat. Bank.

CORNELIUS DORR.] Established 1860. [GEORGE A. ALLISON.

DORR, ALLISON & CO.,
FLOUR AND GRAIN
Commission Merchants,
No. 3 COMMERCIAL ST., BOSTON.
Liberal advances made on consignments. Correspondence solicited

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HEALD & CO.,

Flour and Grain Commission Merchants,

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REFERENCES:

Citizens' National Bank, Baltimore; Mechanics' National Bank, Baltimore; Jno. A. Hambleton & Co., Bankers, Baltimore.

Wanted—Responsible parties to solicit grain for us in the West. Liberal Commissions.

ESTABLISHED 1866.

J. VAN WINT,

Grain and Flour Agent,

ANTWERP, BELGIUM.

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ESTABLISHED 1858.

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Liberal Advances on Consignments.

WARNER & WILBUR,

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Refer by permission: B. L. Smith, Cashier Hide and Leather National Bank, Chicago, Ill.; Col. E. A. Bowen, President First National Bank, Mendota, Ill.; Chas. C. Macy, Cashier Farmers' National Bank, Hudson, N. Y.; Wm. Seymour, Cashier First National Bank, Hudson, N. Y.; Fred'k Hill, Cashier Tanners' National Bank, Catskill, N. Y., or O. P. Collier, President First National Bank, Battle Creek, Mich.

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Solicit Consignments and Orders for Future Delivery.

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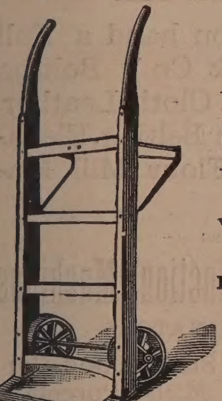

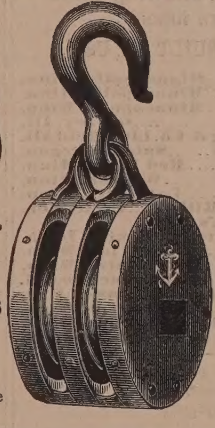

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FOUR WHEEL WAGONS
Of Every Description.

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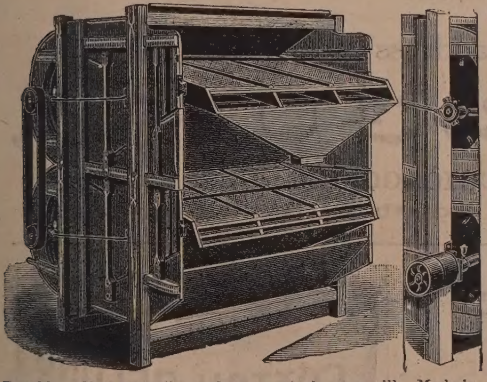

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IMPROVED STEAM SHOVELS

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ESTIMATES FURNISHED ON APPLICATION.

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Seamless Round Corners, Shovel Edge, Curved Heel, Carries More, Runs Easier, Empties Clean, Lasts Longer, is nearer Perfection than any other bucket made.

WHAT USERS SAY OF IT.

We are much pleased with the "Salem" bucket—have over six thousand in our mill, and pronounce them the best we ever used.
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We consider the "Salem" the *best in the market.* What better testimonial can you have than the size and frequency of our orders.
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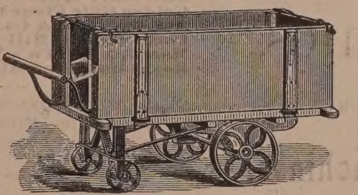

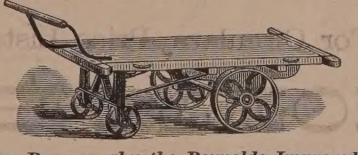

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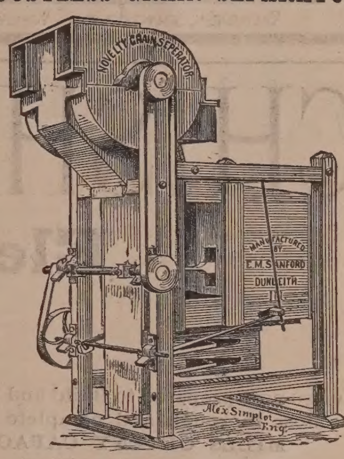

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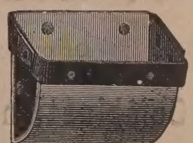

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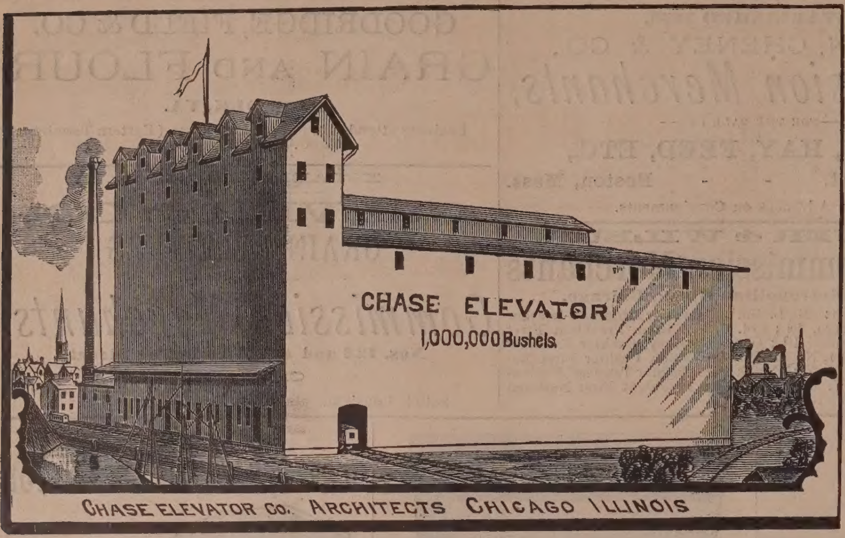
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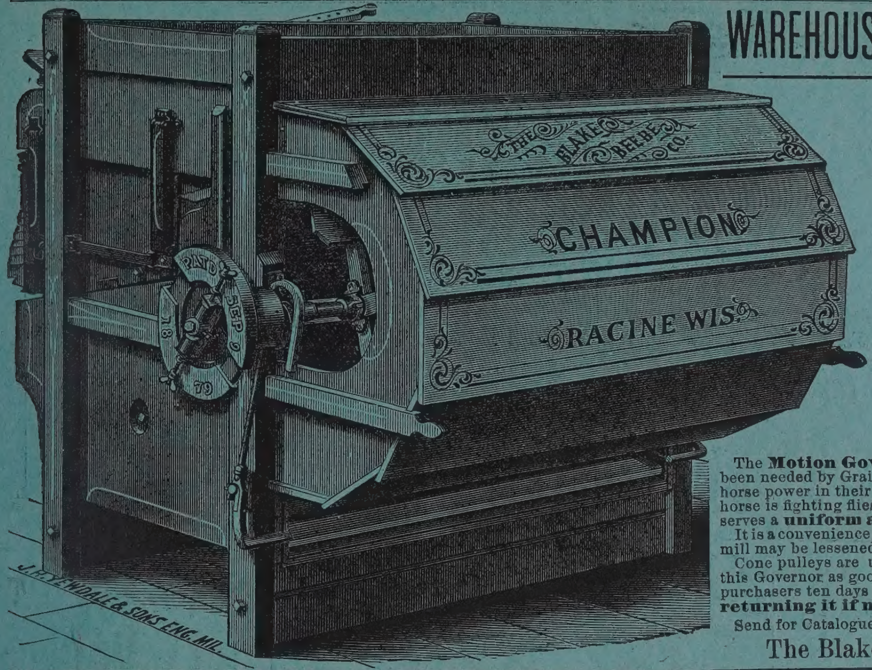
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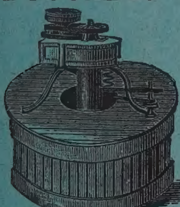

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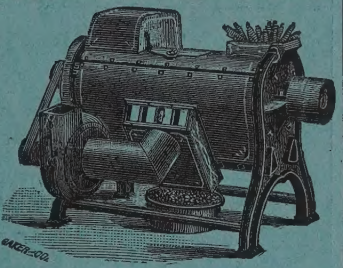

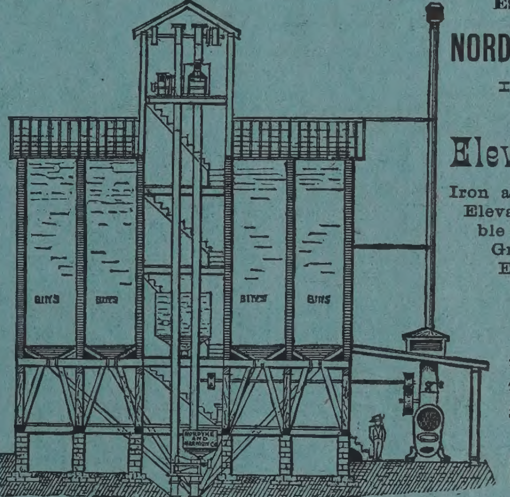

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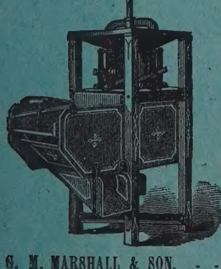

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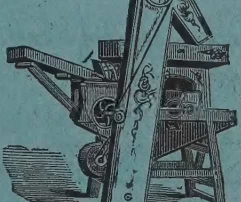

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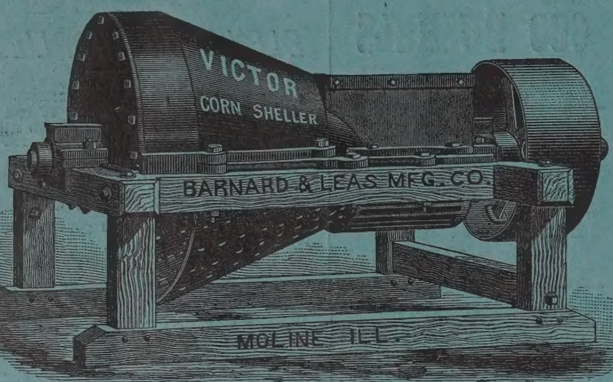
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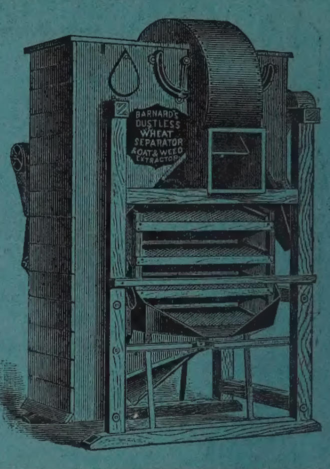

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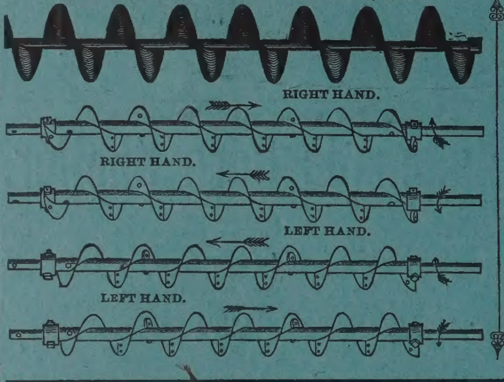
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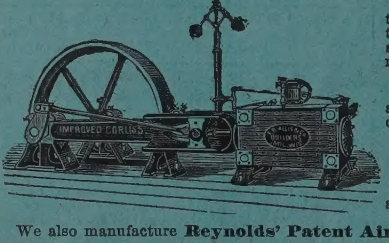
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